Manager and Provider Perspectives of the Work Environment Experienced by Associate Clinicians, Nurses and Midwives who Deliver Emergency Obstetric Care in Tanzania

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ABSTRACT

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Positive practice environments promote the health, safety and well-being of health workers by supporting professionalism, acknowledging performance and ensuring opportunities for professional growth. According to the International Collaborating Partners of the Positive Practice Environments Campaign, positive practice environments foster a motivated, productive and high-performing pool of workers who deliver high quality care. Research shows that achieving positive practice environments for health care professionals is problematic worldwide. In Tanzania, the capacity of human resources for health managers to implement deliberate and strategic action to plan for and effectively deploy health workers, as well as safeguard their practice environments, is severely diminished. The basic strategic human resources management (SHRM) components model was used to guide understanding of the relationship between people management practices and the practice environment. This dissertation examined the people management practices that have been implemented in Tanzania and their impact on the practice environment experienced by associate clinicians (ACs), nurses and midwives who deliver emergency obstetric care (EmOC). Interview and survey data obtained from frontline ACs, nurses and midwives and members of Council Health Management Teams (CHMTs) tasked with planning for and deploying health human resources offered provider and managerial perspectives of the practice environment within which EmOC is delivered in Tanzania. The eight people management practices

specified in the basic SHRM components model were applied in varying extents across the 48 districts assessed. Partial implementation contributed to loss of motivation and undermined the performance of ACs, nurses and midwives who deliver the essential interventions constituting EmOC in Tanzania.

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DEDICATION

This dissertation is dedicated to health workers worldwide who endure the most difficult living conditions and work environments but somehow harness their inner will to go to work every day and deliver essential health services to their fellow citizens. My desire is to chip away at the barriers to enabling and healthy work environments, one at a time.

I also dedicate this work to the multidisciplinary personnel at Magnet® recognized Hackensack University Medical Center whose exemplary and award winning work has given me priceless insight on the organizational milieu and people management practices that produce quality and safe health services.

IN MEMORY

This dissertation is in memory of Professor Wangari Muta Maathai, a fierce and fearless champion for human rights, a beloved guardian of our environment, and the first woman in east and central Africa to earn a PhD.

Chapter I

STATEMENT OF THE PROBLEM

Introduction

Positive practice environments that support the health, well-being and safety of health care providers in both low-income and high-income countries enable a motivated, productive and high performing pool of personnel who deliver high quality care (International Collaborating Partners of the Positive Practice Environments Campaign[§], 2008). According to the coalition of international professional organizations cited, positive practice environments inherently

- recognize professional autonomy
- promote and reward employee performance
- employ effective management practices
- offer opportunities for professional development and mentorship
- adopt safety standards and ensure the well-being of personnel

Research shows that achieving the ideal healthy, supportive and safe work environments for health care personnel is problematic worldwide and all health professions represented in diverse practice settings are affected (Aiken, Clarke, Sloane, 2002; Kruse et al, 2009; Wallace, Lemaire & Ghali, 2009).

A work environment where practitioners are not supported to acquire appropriate skills to perform their jobs or dissuaded from forming effective professional relationships erects a barrier to safe and quality care (Institute of Medicine (IOM), 2001; American Association of Critical Care Nurses (AACN), 2005). In the perinatal setting, a cohesive

§The International Collaborating Partners for the Positive Practice Environments Campaign include the International Council of Nurses, the International Pharmaceutical Federation, Worldwide Dental Federation, World Medical Association, Global Health Workforce Alliance, International Hospital Federation and the World Confederation for Physical Therapy.

team of skilled caregivers is essential because acute obstetric care involves a complex system characterized by fluctuations in pace, variations in patient acuity, unpredictable patient volume and converging teams of multidisciplinary care providers with various roles and responsibilities (Knox, Simpson & Garite, 2009). So important is the work environment that breakdown in communication between members of care-giving teams has been identified as the root cause of almost 75% of cases of perinatal death and long-term loss of function in infants who weigh more than 2,500 grams at birth without the presence of congenital disorders in the United States (Joint Commission on Accreditation of Health Care Organizations (JCAHO), 2004). As a result, the World Health Organization (WHO) and other health authorities, including the United States IOM, Agency for Healthcare Research and Quality (AHRQ) and JCAHO, recommend that hospitals endorse a culture centered on patient safety.

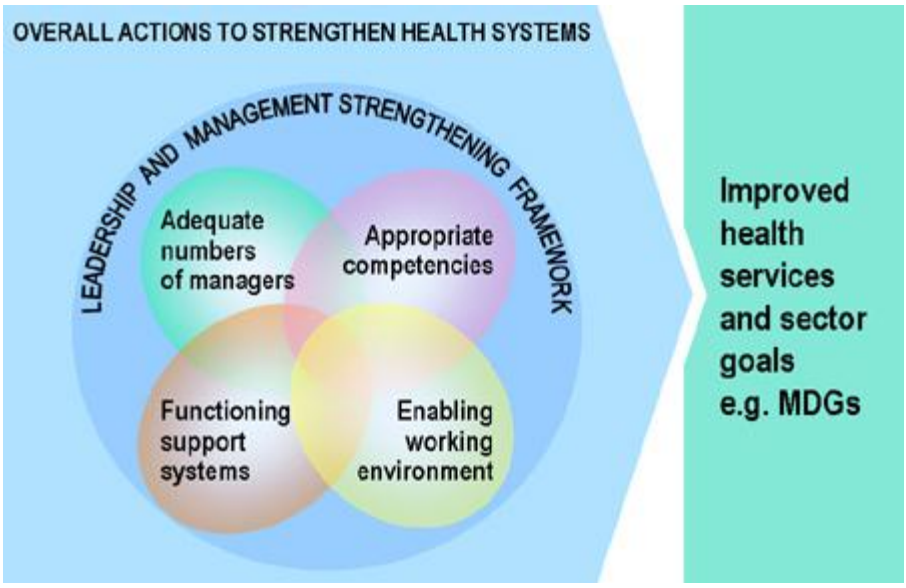
According to the Commonwealth Fund, a hospital leadership fixated on quality of care is a necessary condition for realizing positive practice environments (Meyer et al, 2004; Silow-Carroll, Alteras & Meyer, 2007). Organizational leaders in high performing hospitals in the United States studied by the Commonwealth Fund were found to possess four common traits. These attributes included managers with a deep commitment to an organizational culture centered on quality, ability to attract and retain the right talent to accomplish their quality-driven goals, implementing appropriate processes for quality improvement and providing "staff the right tools to do their job" (Meyer et al, 2004; Silow-Carroll et al, 2007).

In sub-Saharan Africa, the capacity of human resources for health managers who are responsible for strategic planning and effective deployment of health workers,

including deliberate actions to safeguard positive practice environments, is diminished (Egger et al, 2005). A study of the capacity of human resources management (HRM) in 26 African countries found that most possessed adequate strategic tools and were involved in numerous management activities that ranged from budget issues to implementing a human resource information system (Nyoni & Gedik, 2012). However, in these countries assessed by Nyoni and Gedik (2012) limitations such as managers whose academic preparation is not related to HRM, managers who lack HRM experience and general infrastructure deficiencies were a major hindrance to fulfilling even basic HRM activities.

WHO (2007) proposes a leadership and management framework (see Figure 1) which asserts that four characteristics of human resources for health (HRH) managers are essential for effective health services delivery: adequate numbers, appropriate competency, an enabling work environment and proper support. The framework implies that strong HRH managers act to meet population needs for health services and other health sector goals, including the Millennium Development Goals (MDGs). It follows then that in cases where HRH management capacity is known to be weak, the delivery of health services suffers adverse consequences and health sector goals are not met. One of the ways through which vulnerable HRH managers may undermine health services delivery is their inability to sustain positive practice environments that enable a high performing pool of health workers to provide quality care.

Figure 1 WHO leadership and management strengthening framework



Problem Statement

The United Republic of Tanzania is one of the countries in sub-Saharan Africa whose health HRM capacity is considered weak. According to WHO (2009a), HRM activities there are overseen by a poorly staffed HRH unit within the Ministry of Health. National guidelines exist to assist HRH managers in planning, procurement, drug logistics, and supplies management. Managers at the district level report autonomy over managerial functions such as staff discipline, promotion of some cadres, performance appraisals and assigning opportunities for continuing education. Despite their authority, half of HRH managers in Tanzania do not meet the government requirement that they are a health professional with an added qualification in public health. In addition, there are no documented requirements for competency and performance standards against which performance can be evaluated. As many as 42% of district regional managers lack a formal job description, which makes it effectively impossible to evaluate their

performance. Furthermore, the 50% turnover rate for HRH managers in Tanzania contributes to fragmented HRM (WHO, 2009a).

In addition to an inadequate HRH management capacity, the health workforce is in a similarly weak position. Tanzania is one of 49 countries with the most severe health workforce deficiencies (WHO, 2010). With 3 physicians, nurses and midwives per 10,000 people, this level is far below the recommended 23 doctors, nurses and midwives per 10,000 people necessary to attain at least 80 per cent coverage by skilled attendants during childbirth (WHO, 2006; WHO 2010). As a result, the most current data show that only half of all deliveries in Tanzania occur under the supervision of a skilled attendant (WHO, 2012).

In order to expand access to basic and comprehensive emergency care (EmOC), defined as the crucial interventions used to manage the most common causes of maternal mortality, mid-level providers in Tanzania are trained and licensed to perform signal functions that comprise EmOC (Lobis et al, 2011; WHO, 2009c). The signal functions that comprise EmOC are presented in Appendix A. Mid-level providers are cadres who have attained less pre-service training than physicians. They include Associate Clinicians (Assistant Medical Officers and Clinical Officers), nurses and midwives who typically receive 2 to 5 years of post-secondary education prior to entering the health service (Lobis et al, 2011; Pereira et al, 2011; Touch Foundation, 2009). While Assistant Medical Officers are trained to perform all 9 signal functions encompassing comprehensive EmOC, and Clinical Officers, nurses and midwives are prepared to deliver at least 5 of the 7 signal functions comprising basic EmOC, national and district

policies actually require these cadres to perform fewer functions than they are trained to carry out (Lobis et al, 2011).

In addition to the dissonance between pre-service preparation and regulatory requirements for Associate Clinicians (ACs), nurses and midwives, Lobis et al (2011) also discovered that actual practice is markedly divergent from expected levels. To illustrate these inconsistencies, Lobis and colleagues (2011) found that 17% of Clinical Officers in their study reported performing all 7 of the basic EmOC signal functions despite being trained to carry out only 5 and restricted to performing 3 by national policy and 4 by district policy. The organizational context within which the personnel actions described are disparate from regulatory expectations warrants further investigation.

Purpose of the Study

This study sought to examine the notion that HRM practices employed by vulnerable HRH managers in Tanzania are contributing to an unfavorable practice environment, which inevitably produces undesired employee behaviors (Wright, Dunford & Snell, 2001, 2007). Wernerfelt (1984) stated that for any organization, "resources and products are two sides of the same coin." If HRH managers and their HRM practices are the "resource," then the extent to which ACs, nurses and midwives experience positive practice environments is the "product."

The overall goal of this study was to shed light on the HR management practices currently in use to manage ACs, nurses and midwives who deliver EmOC in Tanzania from the perspective of health workers and HRH managers. This investigation aspired to achieve two aims. The first was to examine critical incidents that are negative events attributed by distinct cadres providing EmOC to cause loss of motivation and intention to

leave. The second aim was to describe the people management practices implemented by Council Health Management Teams[§] (CHMTs) to manage ACs, nurses and midwives who deliver EmOC in Tanzania.

Theoretical Framework

This study was guided by the theoretical perspective of strategic human resources management (SHRM). Wright and McMahan (1992) defined SHRM as the "pattern of planned human resource deployments and activities intended to enable an organization to achieve its goals." Wright et al (2001, 2007) further advanced SHRM as a launching pad to propel a given organization towards achieving competitive advantage. Borrowing from Wernerfelt's (1984) notion that organizational success can be examined as a function of internal resources rather than by product alone, they proposed a model of basic SHRM components. Exhibited in Figure 2, this model comprises the three components that an organization must successfully master in order to sustain competitive advantage.

Human Capital Pool

Human capital pool refers to the cache of skills possessed by employees. This reservoir of skills must match organizational goals and as a result, be routinely monitored to ensure alignment with the organization's strategy.

Employee Relationships/behavior

It is important to recognize that employees, as cognitive human beings, utilize their own judgment to influence individual behavior that may or may not benefit the

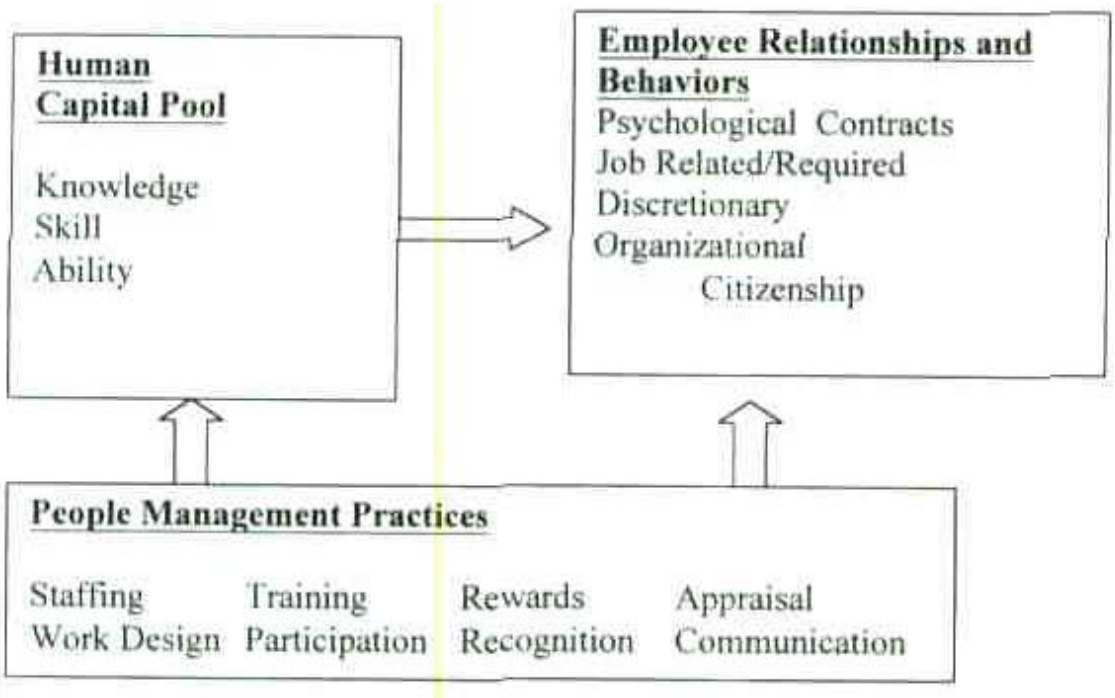
§ Council Health Management Teams (CHMTs) are local health authorities who identify local health priorities, plan for and allocate resources according to national guidelines and budgets. CHMTs comprise the District Medical Officer (chairperson), District Nursing Officer, District Laboratory Technician, District Health Officer, District Pharmacist, District Dental Officer and District Health Secretary. Other members may include Reproductive and Child Health Coordinator, Tuberculosis and Leprosy Coordinator, Malaria Coordinator, HIV/AIDS Coordinator and Cold Chair Operator (Maluka et al, 2011)

organization as a whole. Wright et al (2001, 2007) posit that competitive advantage is attained when cumulative employee behavior is directed towards meeting organizational goals.

People Management Practices

People management practices refer to the system of activities exploited by an organization to produce employee behaviors that promote achievement of competitive advantage. The view that people management practices influence employee behavior formed the impetus for this study to explore strategies used by HR managers in Tanzania to stimulate productivity and high performance in personnel who deliver basic and comprehensive EmOC.

Figure 2 A model of the basic strategic human resources management components



Research Questions

The two research questions for this study were:

Research Question 1

What are the critical incidents attributed by distinct cadres providing EmOC in Tanzania to cause loss of motivation and intention to leave?

- What are the emerging themes attributed by providers of EmOC to induce intention to leave?
- How do the themes differ across cadres?
- How do the themes expressed in English and Swahili compare in terms of underlying concepts and cultural nuances when analyzed separately?

Research Question 2.1

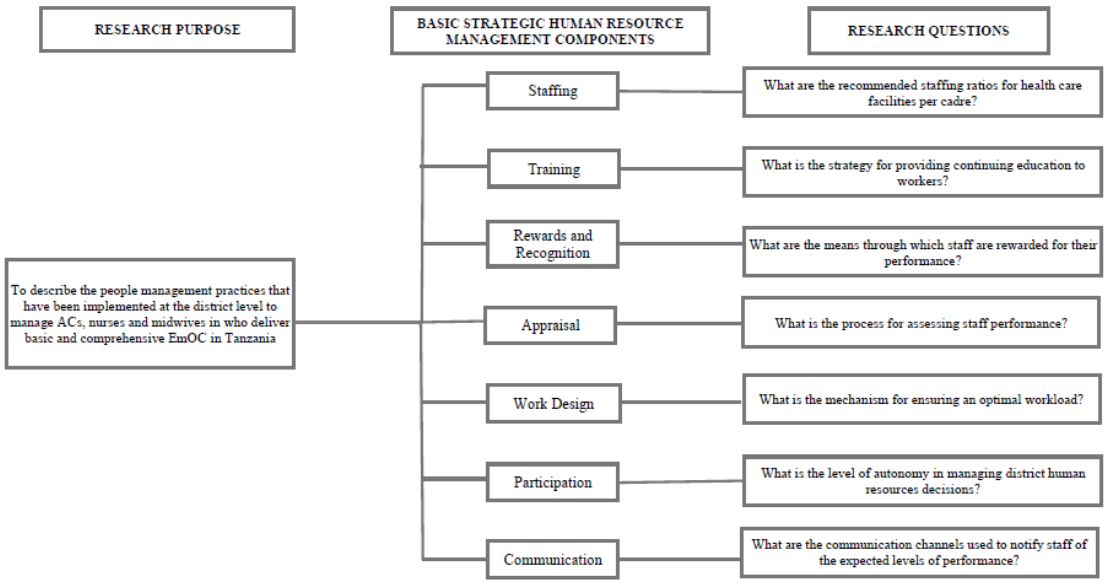
What are the people management practices that have been implemented at the district level to manage ACs, nurses and midwives who deliver basic and comprehensive EmOC in Tanzania (see Figure 3)?

- What are the recommended staffing ratios for health care facilities per cadre?
- What is the strategy for providing continuing education to workers?
- What are the means through which staff are rewarded for their performance?
- What is the process of assessing staff performance?
- What is the mechanism for ensuring an optimal workload?
- What is the level of autonomy in managing district human resources decisions?
- What are the communication channels used to notify staff of the expected levels of performance?

Research Question 2.2

How do these people management practices compare to local and national guidelines and best practices identified in the literature reviewed?

Figure 3 Relationship between basic SHRM components model, Research Aim 2 and Question 2.1



Potential Contributions

Knowledge of the systems factors that influence the performance of ACs, nurses and midwives who deliver EmOC in Tanzania is crucial to informing development of HRM policy to effectively deploy available health workers within a context characterized by severe health personnel shortages and other health system constrains. Exploring the relationship between HRM practices and the performance of ACs, nurses and midwives who deliver basic and comprehensive EmOC through the lens of Wright and colleagues' (2001, 2007) model of basic components of SHRM represents a novel application for a

model more commonly employed in assessing personnel in commercial, for-profit entities.

Chapter II

REVIEW OF THE LITERATURE

Introduction

Globally, maternal mortality has decreased by 47% to 287,000 deaths annually since 1990 (WHO, 2012b). Despite significant progress towards reducing maternal deaths worldwide by 75%, the fifth Millennium Development Goal (MDG 5) set by United Nations (UN) member states, sub-Saharan Africa lags behind all other regions. More than half of all maternal deaths occur in sub-Saharan Africa (WHO, 2012b). Between 1990 and 2010, maternal mortality decreased by 2.2% annually; far below the 5.5% per annum required to meet MDG 5 (WHO, 2012b). Maternal deaths are a leading contributor to the disease burden in the region and are ranked the 14th cause of years of life lost due to premature mortality (Lozano et al, 2012; WHO, 2012b).

The primary reason for the unrelenting maternal mortality rate in sub-Saharan Africa is the lack of skilled supervision during childbirth. Fewer than half of all births in the region are attended by skilled personnel (WHO, 2012a). The period between the end of pregnancy up to 48 hours after delivery is the most critical because two-thirds of deaths occur during this time (Graham, Bell & Bullough, 2001). Analysis of the causal pathway to death during childbirth pinpoints that the skill most applicable in averting mortality is the anticipation and identification of complications, followed by appropriate management of the arising problem (Graham et al, 2001). This suggests that enhanced surveillance by knowledgeable personnel during the puerperium, when women are at greatest risk of death, promotes early recognition of complications resulting in early intervention while the situation is still manageable (Donnay, 2000).

In order to improve equity in accessing skilled attendance at birth, multiple convergent individual (demand side) and health systems (supply side) factors must be addressed. On the demand side there are complex and interlocking socio-cultural, economic and geographic factors that act to discourage the choice to seek quality maternal care (Ronsmans & Graham, 2006). These individual determinants of maternal health services utilization include income level, distance from facility, education status and decision-making capacity (Gage, 2007; Mariko, 2003). On the supply side, health systems constrains including inadequate infrastructure, unpredictable availability of resources and poor personnel performance erect a barrier to utilization of safer facility deliveries (Koblinsky et al, 2006). There is evidence to show that modifying these personnel performance can increase the utilization of safer deliveries supervised by skilled personnel.

According to the WHO (2009b), workforce performance comprises four elements: availability, competence, responsiveness and productivity. An ample supply of personnel is critical to meeting the need for skilled maternal health care. The inverse relationship between availability of health personnel and maternal mortality has been well documented (Anand & Bärnighausen, 2004; Chen et al, 2004). Data from 83 low- and middle-income countries showed that a 1% increase in the density of doctors and nurses corresponds to a 47% decrease in maternal mortality (Anand & Bärnighausen, 2004; Chen et al, 2004). Therefore, it is clear that overcoming personnel shortages by adding to the pool of health workers increases the availability of supervised childbirth by skilled personnel and averts death.

Also essential to personnel performance in the delivery of quality and safe obstetric care is a competent, responsive and productive health workforce (WHO, 2009b). Research shows that the likelihood that women in underserved rural areas will pursue the safer option to deliver in facilities has been linked to perceptions of the quality of care they will receive. In two studies examining women's preferences for facility births, Kruk and colleagues confirmed the desire for better quality maternity care. Amongst 1203 women from Kasulu District in Tanzania offered 8 cards depicting two possible health center options with various attributes in a discrete choice experiment, positive provider attitudes were the most important factor in deciding whether to deliver their babies in health facilities ($\beta = 3.32$ and 95% CI: 3.140-3.498) (Kruk et al, 2012a). Additionally, in 8 sub-Saharan African countries receiving aid under the President's Emergency Plan for Aids Relief (PEPFAR), Kruk et al (2012b) found that 257 facilities providing antiretroviral therapy (ART) between January 2007 and March 2011 were associated with more deliveries by women not infected with HIV/AIDS. They attributed this finding not only to the availability of superior infrastructure at these facilities, such as well equipped laboratories, but also to services delivered by health personnel that focus on continuity of patient care, a hallmark of HIV/AIDS care.

The negative impact of perceived poor quality of care on utilization of skilled attendance during childbirth has been directly observed in India. Impolite and disrespectful treatment of pregnant women from poor urban areas by nurses in maternity homes was identified as a major deterrent to seeking professional care during childbirth (Singh, 2010). Initially, researchers sought to find out why after an initial surge, fewer women living in the urban sprawls of New Delhi were seeking professional care in

numerous and easily accessible maternity homes. Despite a widely disseminated campaign that included financial incentives for births occurring in maternity homes, impoverished women still chose to pay out of pocket to receive the care of a traditional birth attendant at home (Singh, 2010).

Delivery of obstetric care that is safe, accessible and acceptable to a childbearing patient is dependent upon the personnel and organizational attributes encountered at the point of interface with the health care system. According to the basic SHRM components model proposed by Wright et al (2001, 2007), purposeful use of specific people management practices can be applied to cultivate personnel knowledge, skills, attitudes and behaviors that are aligned with organizational goals. These organizational milieu and personnel characteristics form the focus of this literature review.

Human Capital Pool

Knowledge, Skills, Ability and Patient Outcomes

Seminal studies conducted by Aiken and her colleagues in high-income countries used a cross-sectional design to survey nurses in the state of Pennsylvania and the province of Alberta in Canada on topics that included workload, job satisfaction, burnout, education level, nursing specialty certification status and their perceived environment of care (Aiken et al, 2002; Aiken et al, 2003; Aiken et al, 2008; Estabrooks et al, 2005; Kendall-Gallagher, Aiken, Sloane & Cimiotti, 2011). Similarly, surgical mortality data were extracted from the discharge summaries reported by hospitals in Pennsylvania and Alberta. Consequently, the quality of their environment of care was linked to the surgical mortality data to determine the effects of nursing characteristics on outcomes.

Aiken et al (2003) compared nurses' educational characteristics with the same discharge abstracts of more than 200,000 patients who underwent surgical procedures in the Pennsylvania hospitals that were reported to the Pennsylvania Health Care Cost Containment Council and mortality data from state vital statistics records. The research team found that increasing the proportion of baccalaureate prepared nurses by 10% reduced the odds of both surgical patient mortality and failure to rescue by 5% (OR: 0.95 and 95% CI: 0.91-0.99 for both).

This effect of nurses' education levels on risk-adjusted surgical patient mortality and failure to rescue was confirmed in a secondary analysis conducted by Kendall-Gallagher and colleagues on 2005-2007 data and reported in 2011. In this study, more than 28,000 nurses from California, Florida, New Jersey and Pennsylvania provided their highest academic credential and other demographic characteristics. Outcomes of more than 1.2 million patients who underwent surgery in 652 hospitals in the four states were derived from discharge data. Logistic regression models controlling for hospital, patient and nursing characteristics estimated that increasing the proportion of nurses with a baccalaureate degree by 10% decreased the odds of both surgical patient mortality and failure to rescue by 6%. These findings bear resemblance to another secondary analysis by Kendall-Gallagher and Bleggen (2009) on data from 2000 that measured the proportion of specialty certified and baccalaureate prepared nurses against rates of adverse outcomes such as falls. In this study, researchers found a significant inverse relationship between proportion of specialty certified nurses and falls ($\beta = -0.04$; $p = 0.04$) but not with medication errors, skin breakdown, central line and blood stream infections or urinary tract infections. Furthermore, Kendall-Gallagher and Bleggen

(2009) found no significant relationship between baccalaureate preparation and the rates of the specified adverse events. Investigators attributed this result to limitations in study methodology that employed self-reported data on adverse events as well as missing data on 4 out of the 6 outcome measures. However, Kendall-Gallagher et al (2011) included an interaction term for baccalaureate preparation and specialty certification in their multivariate analyses. Investigators concluded that for every 10% increase in the proportion of baccalaureate prepared nurses who are specialty certified, a concomitant 2% decrease in the odds of both failure to rescue and mortality is observed (OR: 0.98, $p = 0.01$).

Estabrooks et al (2005) examined data from 49 acute care hospitals in Alberta, Canada. Discharge summaries of 18,142 patients reported to the Canadian Institute for Health Information and death records obtained from the Alberta Health Care Insurance Plan Registry were evaluated. These findings were compared to characteristics reported by 6,256 nurses via survey. Hierarchical generalized linear modeling was used to estimate the effect of nursing education on 30-day patient mortality. Estabrooks et al (2005) found that a higher proportion of baccalaureate prepared nurses resulted in decreased rates of 30-day mortality (OR: 0.65; CI: 0.60-0.71; $p < 0.01$).

People Management Practices

Staffing and Work Design

Aiken et al (2002) reported findings from a random survey of more than 10,000 staff nurses whose principle function was bedside care in 168 non-Federal hospitals in Pennsylvania. In 1999, nurses in the study were asked to respond to questions regarding their work history, workload, job satisfaction and perception of burnout. Researchers

then compared nurses' characteristics with discharge abstracts of more than 200,000 patients who underwent surgical procedures in the Pennsylvania hospitals that were reported to the Pennsylvania Health Care Cost Containment Council and mortality data from state vital statistics records. After controlling for facility and individual nurse and patient characteristics, logistic regression models estimated the odds of job dissatisfaction, burnout, mortality and failure to rescue (deaths occurring in patients who experienced complications following surgery) associated with each additional patient assigned to a nurse. The odds of mortality and failure to rescue increased by 7% per additional patient. In addition, for each patient assigned to a nurse, job dissatisfaction increased by 15% (OR: 1.15 and 95% CI: 1.07-1.25) and burnout increased by 23% (OR: 1.23 and 95% CI: 1.13-1.34).

Recognition, Communication, Participation

The significance of the tenets of recognition, communication and participation has been well established in hospitals across the United States since the 1980s when influential research was conducted on facilities now known as "magnet" hospitals. In 1981, the American Academy of Nurses charged the Task Force on Nursing Practice in Hospitals with examining factors that influence nursing practice in hospitals within the United States. McClure et al (1983) identified a national sample of 41 "magnet" hospitals that were able to attract and retain nurses despite a persistent shortage of nurses. Collectively, these hospitals reported at least 85% of their budgeted registered nurse positions filled, mean nurse to occupied bed ratio of 1.1:1, nurse to LPN ratio of 10:1, nurse to aide ratio of 12:1 and nurse to unit clerk ratio of 9:1. Additionally, more than 57% of supervisors and directors of nursing possessed a bachelor's degree or higher

academic preparation. More than 50% of nurse managers in these hospitals were not baccalaureate prepared. Directors of nursing and staff nurses whose routine role was not administrative or to function as a charge nurse participated in separate group interviews. Staff nurses identified the following characteristics that distinguished their representative institutions as “magnets”:

- Visible leadership and inclusive management style
- Strong and supportive administration who set high standards for nurses
- Flat organizational structure
- Strategies to ensure adequate staffing and skill mix
- Personnel policies comprising competitive remuneration, flexible work schedules and recognition programs
- Focus on quality of care.
- Accountability and ownership for delivery of professional nursing care
- Autonomous nursing practice
- Quality assurance programs
- Availability of resources such as clinical nurse specialists and ethicists to advance nursing care
- Community outreach programs
- Nurses teach patients, other health professionals, nursing students
- Nurses are viewed positively and respected as essential to the hospital
- Collaborative nurse-physician relationships
- Didactic and clinical orientation programs
- Continuing education programs

- Encouragement to pursue baccalaureate preparation
- Opportunities for career development, such as career ladder programs

At these hospitals, "magnet" designation corresponded to lower rates of morbidity and mortality as well as higher patient and nurse satisfaction scores (Ulrich, Buerhaus, Donelan, Norman & Dittus, 2007).

McHugh et al (2012) compared 56 Magnet-designated hospitals recognized for their organization of work environment for nurses to impact patient outcomes to 508 non-Magnet hospitals in California, Florida, Pennsylvania and New Jersey. Data from more than 100,000 nurses in the 4 states showed better work environments in Magnet hospitals compared to non-Magnet counterparts. The Practice Environment Scale of the Nursing Work Index (PES-NWI) score in Magnet hospitals was 2.86 and significantly different from the score of 2.66 reported by nurses in non-Magnet hospitals ($p < 0.001$). The odds of mortality 30 days after a surgical procedure and failure to rescue in Magnet hospitals compared to non-magnet hospitals were significantly lower (OR: 0.80 and 95% CI: 0.71-0.89 and OR: 0.81 and 95% CI:0.72-0.91 respectively). Furthermore, in hospitals with a higher likelihood of being Magnet-designated based on organizational nursing characteristics, the odds of 30-day surgical mortality and failure to rescue decreased significantly (OR: 0.50: 95% CI: 0.38-0.67 and OR: 0.48 and 95% CI: 0.37-0.63 respectively).

Ideal People Management Practices are Difficult to Attain

Despite the evidence linking people management practices to the sustenance of optimal work environments that support the realization of superior patient outcomes, these ideals are out of reach for many facilities in high- and low-income countries alike.

In a recent survey of more than 30,000 nurses from 12 European countries, more than half of nurses from 9 of the 12 countries rated their work environments as poor or only fair (Aiken et al, 2012). In half of these countries, more than a third of nurses reported that "things often fall through the cracks" during patient transfers. More than 21% (range 21% to 56%) of respondents in 11 of the 12 countries reported dissatisfaction with their jobs. Additionally, 25% to 49% of nurses in 11 countries cited intention to leave their current job in the next year with more than 18% (range 18% to 47%) reporting interest in careers other than nursing. Elsewhere, in sub-Saharan Africa, poor compensation schemes, weak supervisory processes, scarcity of basic medication, equipment and supplies, and run down health facilities have been identified to collectively demoralize health workers and induce intention to leave (Kabene, Orchard, Howard, Soriano & Leduc, 2006; Lehman, Dieleman & Martineau, 2008; Mathauer & Imhoff, 2006; Willis-Shattuck, et al, 2008).

Appropriate People Management Practices are Highly Desired by Personnel

In addition to the seminal study by McClure et al (1983) demonstrating that organizations possessing people management practices analogous to positive practice environments were "magnets" sought after by health personnel, there is research to show that personnel in low-income countries highly desire these attributes. Incentives that have been reported by health personnel in these regions to positively impact recruitment, retention and performance resemble the qualities of a positive practice environment (Dieleman, Gerretsen & van der Wilt, 2009; Lehmann et al, 2008; Mathauer & Imhoff, 2006; Willis-Shattuck et al, 2008). These include sufficient remuneration at regular intervals, adequate staffing, a safe working environment, availability of medication,

supplies and functional equipment, appropriate supervision and access to proper housing, schools and roads.

When Rockers et al (2012) conducted a discrete choice experiment to assess hypothetical preferences for rural job postings, which typically expand access to care for underserved populations, 485 Ugandan final year students of medicine, nursing, pharmacy and laboratory sciences indicated a preference for good quality facilities, proper managerial support and provision of housing. In a similar study of hypothetical preferences for rural job postings amongst 302 fourth year Ghanaian medical students using discrete choice experiment methodology, improved infrastructure and supportive management emerged as leading preferences (β: 1.42; 95% CI:1.17-1.66 and β: 1.17; 95% CI: 0.96-1.39 respectively) (Kruk et al, 2010).

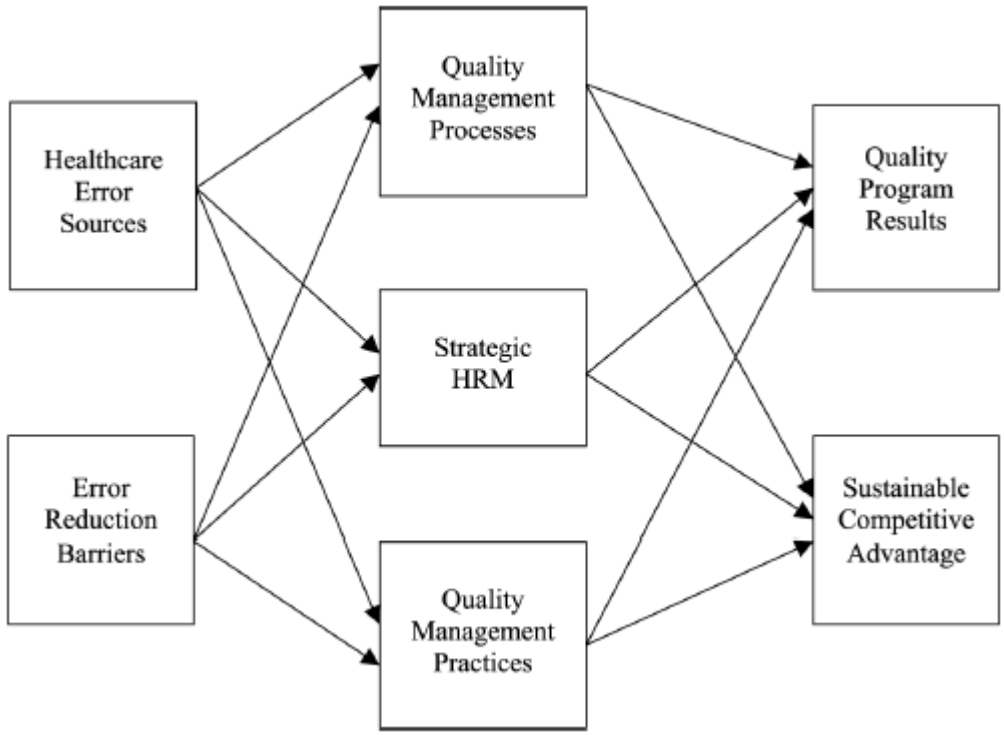
Employee Behaviors

People Management Practices and Quality Processes

The emphasis on people management practices as a critical antecedent and determinant of quality of health services and health outcomes is substantiated by the framework proposed by Gowan, McFadden and Tallon (2006). The framework for effects of health care error sources, error reduction barriers on quality management processes, SHRM, quality management practices, quality program results and sustainable competitive advantage is displayed in Figure 4. To test their framework, Gowan et al (2006) surveyed 587 quality or risk directors of a representative sample of hospitals in the United States. Items measuring SHRM in the survey asked about employee promotion opportunities, recognition, quality teams, training, best practices/information sharing and financial rewards. Linear regression analyses found that the construct “barriers to error

reduction" was negatively related to quality management processes, quality management practices and SHRM (β = -0.202, -0.175, -0.175 respectively; $p < 0.001$). Similarly, identification of health care error sources had a positive and statistically significant relationship with quality management processes, quality management practices and SHRM (β = 0.246, 0.325, 0.261 respectively, $p < 0.001$). Importantly, quality program results were positively related to quality management processes, quality management practices and SHRM (β = 0.302, $p < 0.001$; β = 0.098, $p < 0.05$; β = 0.181, $p < 0.001$ respectively). Gowan et al (2006) surmised that because SHRM had the greatest impact on competitive advantage (β = 0.309, $p < 0.001$), SHRM could "vastly improve an average hospital quality program relative to its competition."

Figure 4 Framework for effects of health care error sources, error reduction barriers on quality management processes, SHRM, quality management practices, quality program results and sustainable competitive advantage



Quality Processes and Emergency Obstetric Care

Process measures used to assess the quality of EmOC in settings burdened with high mortality rates indicate less than optimal performance. Pereira et al (2011) examined the role of assistant medical officers, who have 5 years of post-secondary training and specialize in obstetrics, in meeting the need for EmOC in two regions of Tanzania: Kigoma and Mwanza. Records of close to 40,000 deliveries from 16 government and mission hospitals were reviewed to determine how closely delivery of EmOC in the two regions is aligned to 6 EmOC related UN process indicators. These are 1) 1 comprehensive EmOC and 4 basic EmOC facilities per 500,000 people; 2) 100% of subnational regions with EmOC facilities 3) at least 15% of births occur in EmOC facilities; 4) 100% women with obstetric complications treated in EmOC facilities (approximately 15% births); 5) 5-15% cesarean births; and 6) a case fatality rate of less than 1% (WHO, 2009c). Pereira et al (2011) found that the 2 regions met half of the 6 UN process indicators. Only 34% of women experiencing pregnancy complications in Mwanza and 23% in Kigoma were treated at an EmOC facility. Furthermore, the cesarean section rate in Mwanza and Kigoma was 2.8% and 2.2%, respectively, and far below the lower limit recommended by the UN. Finally, the case fatality rate in Mwanza and Kigoma differed significantly at 2% and 1.2%, respectively ($\chi = 4.97$, $p = 0.026$) with the case fatality rate in Mwanza being double the UN recommended less than 1%. Elsewhere in Ethiopia, Gessessew et al (2011) also found that while non-physician clinicians provided most of obstetric procedures (63%) in 13 EmOC facilities in the

Tigray region, the cesarean section rate of 0.75% falls far below the recommended lower limit of 5%.

The study by Lobis and colleagues (2011) compared whether self-reported performance of EmOC signal functions by 1,478 randomly recruited clinical officers, nurses and midwives in Malawi and Tanzania adhered to regulation and training expectations per cadre in each country. In Malawi, fewer than 10% of registered nurse/midwives, enrolled nurse/midwives, nurse/midwife technicians and medical assistants reported carrying out the signal EmOC functions they were trained to perform. Additionally, discord between district policy and national policy governing performance of EmOC functions emerged. In Tanzania, close to 50% of medical doctors and assistant medical officers reported they delivered all functions comprising comprehensive EmOC, which they were trained but not regulated to provide.

The evidence highlighting unmet need for EmOC in Tanzania coupled with reports that personnel only marginally perform signal functions associated with EmOC despite being authorized and trained to do so is troubling. Research from high- and low-income countries substantiates the significant correlation between people management practices and patient outcomes. These findings strongly imply that creating a positive and enabling work environment for ACs, nurses and midwives who deliver EmOC in low-income countries would correspond to better maternal outcomes. Indeed, strengthening the capacity of health workers in sub-Saharan Africa is at the forefront of the worldwide health agenda due to large-scale initiatives aimed at achieving measurable advances in health (Global Health Workforce Alliance (GHWA), 2013). It can be argued

that as much attention is necessary for the human resources managers who are responsible for providing frontline workers with the "right tools to do their job."

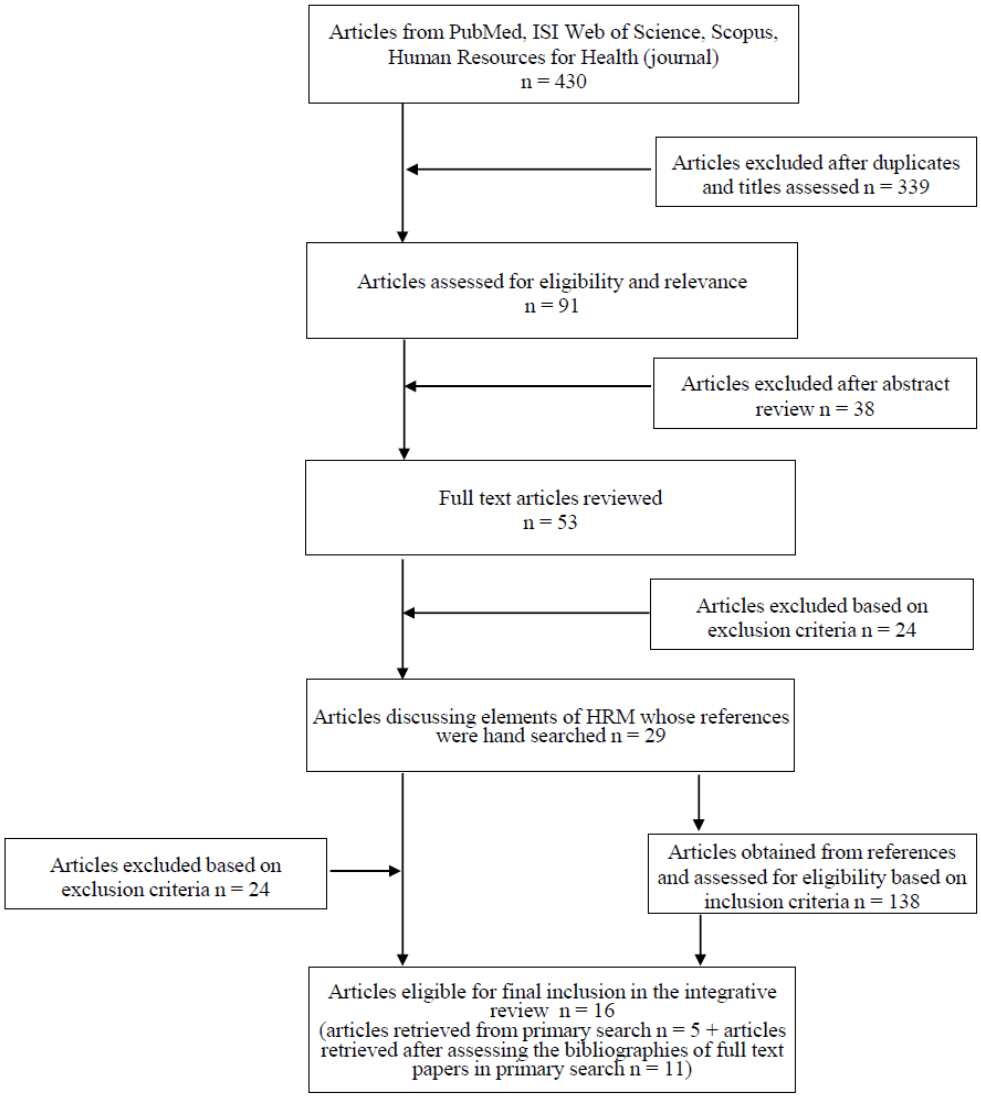
People Management Practices in Low-Income Countries

To synthesize the evidence on capacity building for HRH managers in low-income countries, the existing body of literature was explored in an integrative review. The Human Resources for Health journal, PubMed, ISI Web of Science and Scopus databases were searched for journal articles and gray literature published in English. The following key words were used: human resources management, low-income countries, middle-income countries, health workers and relevant Medical Subject Heading Terms (MeSH). Included in this integrative review were scholarly articles describing theoretically or evaluating empirically the performance of HRH managers in one or more people management practices enumerated in the basic model of SHRM components conceptualized by Wright et al (2001, 2007). Articles evaluating personnel preferences for individual people management practices or the impact of these elements on health worker performance was excluded. The quality of each article was quantified by a score of 0 or 1(low or high) on four criteria: authenticity, informational value, methodological quality and representativeness (Kirkevold, 1997; Whittemore & Knafl, 2005). Data analysis comprised categorizing articles according to year of publication, study methodology used and geographical setting in which the research was conducted. Then studies were clustered according to the element of SHRM discussed and results synthesized to elucidate the state of the evidence on SHRM in developing countries. The same standards of rigor reserved for primary research were applied to this integrative review (Ganong, 1987).

Results

A total of 430 articles were retrieved in the initial search. After duplicates were excluded and titles of the remaining articles assessed for relevance and eligibility, 91 articles remained. Thirty eight articles did not meet eligibility criteria when their abstracts were reviewed. The full text articles of the remaining 53 were then retrieved. A further 24 articles did not meet eligibility criteria and were also eliminated from the review. Twenty nine articles were found to discuss HRM but only 5 of these were included in the integrative review after meeting the eligibility criteria which specified that the papers focus on the performance of HRH managers and not personnel. Additionally, the bibliographies of the 29 articles were hand searched to locate a further 138 articles discussing HRM. The same selection procedures in the primary search were used to sort through the studies retrieved from the references of full text articles. Of these, 11 met the inclusion criteria and counted towards the total of 16 articles in the final integrative review. The article selection process is represented schematically in Figure 5.

Figure 5 Schematic representation of search strategy

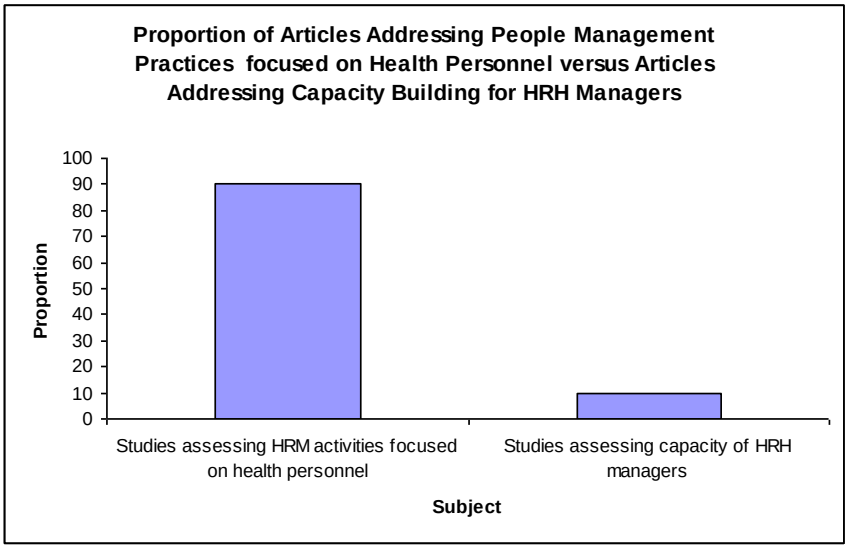


The study outcome was literature describing the performance of HRH managers in their delivery of the people management practices listed in Wright and colleagues' (2001, 2007) basic components of SHRM model. A disproportionately small number of studies were found to address the capacity of HRH managers compared to those that focused on HRM activities geared towards enhancing personnel performance (see Figure

6). All studies received a high score for quality and contributed to assembling this profile of evidence on the performance of HRH managers in low- and middle-income countries.

The 16 articles examined performance of HRH managers in low- and middle-income countries in sub-Saharan Africa, the Middle East, south East Asia and Latin America. The studies were published between 1995 and 2012. One study described tool development to measure supervisor-provider interactions, 5 were case studies, 4 consisted of literature reviews, 3 utilized descriptive and observational quantitative methods, 1 comprised a qualitative study and another used mixed qualitative and quantitative methods. A summary of the results is presented in Table 1.

Figure 6 Proportion of articles addressing people management practices focused on health personnel compared to capacity building for HRH managers



Discussion

The purpose of this integrative review was to synthesize existing evidence on the capacity of HRH managers to implement the people management practices consistent with Wright et al's (2001, 2007) basic components of SHRM model that have been implemented in developing countries. Despite adhering to a thorough search process,

only 16 articles met the inclusion criteria compared to 150 studies looking at the strategies to boost the capacity of health workers. The deficiency of scholarly work on this important subject can be interpreted in two ways. First, capacity building for HRH managers in developing countries is being studied and reported in peer-reviewed journals not indexed in the databases searched. Alternatively, it is also possible that this review was subject to publication bias, which means that ongoing work has not been investigated and written reports submitted for publication.

The glimpse into ongoing work on the performance of HRH managers offered by this literature review was promising. Workshops, short courses, peer-mentoring and field work exercises designed to strengthen personnel and facility management functions have been well received and credited with skill building within the management pool (Bradley et al, 2008; Conn, Jenkins & Touray, 1995; Dieleman, Gerretsen & van der Wilt, 2009; Dorros, 2006; Hartwig et al, 2008; Loevinsohn, Guerrero & Gregoria, 1995; McEwan, Conway, Bull & Malison, 2001; Omar et al, 2009; Perry, 2008; Rowe et al, 2010). Furthermore, acquisition of new skills by HRH managers is accompanied by improvements in health systems functioning such as better stock management (Dieleman et al, 2009). However, it should be noted that these observations and reports of additional skills gained are solely at the time of measurement. It remains unclear whether the effects of the intervention were sustainable as none of the researchers conducted longitudinal assessments. Even when improvements in knowledge and skill were reported after targeted interventions, the change was uneven with HRH managers performing well in some functions and not so well in others (Bradley et al, 2008; Hartwig et al, 2008; Tavrow, Kim & Malianga, 2002).

Human resources for health managers in four sub-Saharan African countries reported that important attributes to their leadership experience included possessing a mission to improve health and evidence-based decision making (Curry et al, 2008). Still numerous challenges remain that effectively limit their ability to fully exercise their position and authority. One important challenge with significant implications for the sub-Saharan African context is decentralized health systems whereby HRM functions are dispersed away from the central government. In these decentralized health systems, HRH managers require essential skills for assuming additional the responsibilities that are pushed out to local government authorities and to navigate the bureaucracy (Dieleman et al, 2009). Still, external factors, such as donor policies that dictate HRM practices and limited access to information necessary to support decision making hamper the capacity of HRH managers (Barker, 1995; Conn et al, 1995).

The significant gap in the knowledge highlighted by this integrative review presents an opportunity to discuss directions for future research. The performance of both health workers and HRH managers remains a key area of interest for health officials in low- and middle-income countries. In the study by Ranson et al (2010), 24 health policy-makers, researchers and representatives of civil society and community organizations from East Africa, south East Asia, the Middle East, North Africa, the Caribbean and Latin America all agreed that health worker performance remains a key policy concern. In this same study by Ranson et al (2010), 15 researchers, policy-makers and representatives of international organizations focusing on HRH were asked to rank research questions concerning aspects of HRH according to priority. Half of the 22

emerging research questions were dedicated to health worker performance, employee behavior or HRH management.

Conclusion

The literature reviewed in this chapter underscored the crucial role of people management practices in shaping the performance of frontline health workers to impact outcomes. The work environment created as a result of people management practices used to deploy ACs, nurses and midwives delivering EmOC in low-income countries determines the quality of care provided to women during childbirth. An integrative review of the literature assessing the people management practices of HRH managers in low- and middle-income countries revealed that this is a highly neglected topic.

Chapter III

METHODOLOGY

Introduction

This study was rooted in the tradition of implementation science, the discipline concerned with understanding "the processes and factors that are associated with successful integration of evidence-based interventions within a particular setting" (Rabin & Brownson, 2012). The goal of this investigation was to elucidate the extent to which the principles of SHRM are incorporated in the deployment of associate clinicians (ACs), nurses and midwives who deliver EmOC in Tanzania. The following chapter describes the study setting and summarizes the study design, data collection methods and analysis approach used to address the research aims.

Setting

Tanzania is a low-income country located in East Africa with a population of 44.8 million people (WHO, 2012a). Per capita gross national income is $1,440 (international $). In 2010, Tanzania allocated 6% of national Gross Domestic Product (GDP) to health (WHO, 2009d). Between 2008 and 2010, Tanzania received the third largest amount of development assistance for health worldwide (Institute for Health Metrics and Evaluation [IHME], 2012). Forty one percent of total expenditure on health in Tanzania is received from external sources, such as non-governmental organizations, bilateral and multilateral donors. In the last 10 years, the proportion of external resources received has varied between 11.34% and 48.28%. The reliance on external resources coupled with considerable variations in funds available for the health sector from year to year means spending on HRH fluctuates according to the funds disbursed (Ministry of Health and

Social Welfare [MoHSW], 2008). This prevents proper forecasting and negatively impacts the ability of HRH managers to implement their workforce strategy.

As mentioned previously, Tanzania is one of the sub-Saharan countries facing severe shortage of health workers. According to the MoHSW (2008), Tanzania is challenged with a health worker deficit of 65%. In addition, Tanzania faces an overwhelming burden of disease (Chen et al, 2004; Willis-Shattuck et al, 2008). The most recent maternal mortality rate is estimated to be 460 per 100,000 live births (WHO, 2012b). Other priority areas for Tanzania are malaria and HIV/AIDS; the prevalence of malaria is 18% and amongst adults, the prevalence of HIV is 5.6% (WHO, 2011; 2012).

The health system in Tanzania operates in a decentralized fashion granting local district authorities the mandate to plan, implement and monitor the delivery of health services (MoHSW, 2008). Although HRH managers possess authority to oversee health services, they are forced to perform their administrative functions within a climate characterized by unpredictable funding streams, an anemic health workforce and a tremendous burden of disease.

Design

This study comprised a secondary analysis of interview and survey data gathered from members of Council Health Management Teams (CHMTs) and ACs, nurses and midwives who deliver EmOC in Tanzania and were recruited to participate in the *Health System Strengthening for Equity: the Power and Potential of Mid-level Providers (HSSE)* project (L. Freedman, Principle Investigator). A descriptive design consisting of a convergent mixed methods approach that utilizes simultaneous core qualitative and supplemental quantitative components was used. Qualitative and quantitative data

collected in parallel in the parent HSSE study were analyzed and then findings from both strands merged to inform the research question (Creswell & Plano Clark, 2011). The mixed methods approach lent itself to triangulation of methods to synthesize, compare and corroborate complementary qualitative and quantitative findings (Creswell & Plano Clark, 2011). This is an important strength of the mixed methods design, one that served to enhance the comprehensiveness with which human resources (HR) management practices that were reported to manage ACs, nurses and midwives who deliver EmOC in Tanzania are described and understood. Figures 7 and 8 illustrate the convergent mixed methods design as it applied to research questions 1 and 2 respectively.

Methods

Sample

The parent HSSE study employed a purposeful sampling strategy to recruit 48 members of Council Health Management Teams and 847 ACs, nurses and midwives who deliver basic and comprehensive EmOC in public and private facilities in Tanzania. Purposeful sampling is used when the investigation calls for selection of participants who are knowledgeable in the phenomenon of interest and can therefore inform the research question in their narratives (Morse, 2007; Creswell, 2007). Participants were deemed eligible to participate if they were a core member of a district CHMT; clinician providers were eligible if they had performed one or more signal function of EmOC in the 3 months preceding the encounter with the research team. Potential participants were required to have fluency in Swahili or English languages. Recruitment proceeded in a snowball fashion. As is tradition in qualitative inquiry, the goal of this enrollment technique was to generate maximum variation of responses, with special emphasis placed on quality and

not quantity of responses (Hsieh & Shannon, 2005; Speziale, 2007). Furthermore, this method served to accumulate a rich compendium of information that can accurately construct a schema of the HR management milieu as it pertains to ACs, nurses and midwives who deliver EmOC in Tanzania (Creswell, 2007; Morse, 2007).

Figure 7 Convergent mixed methods approach pertinent to Research Question 1

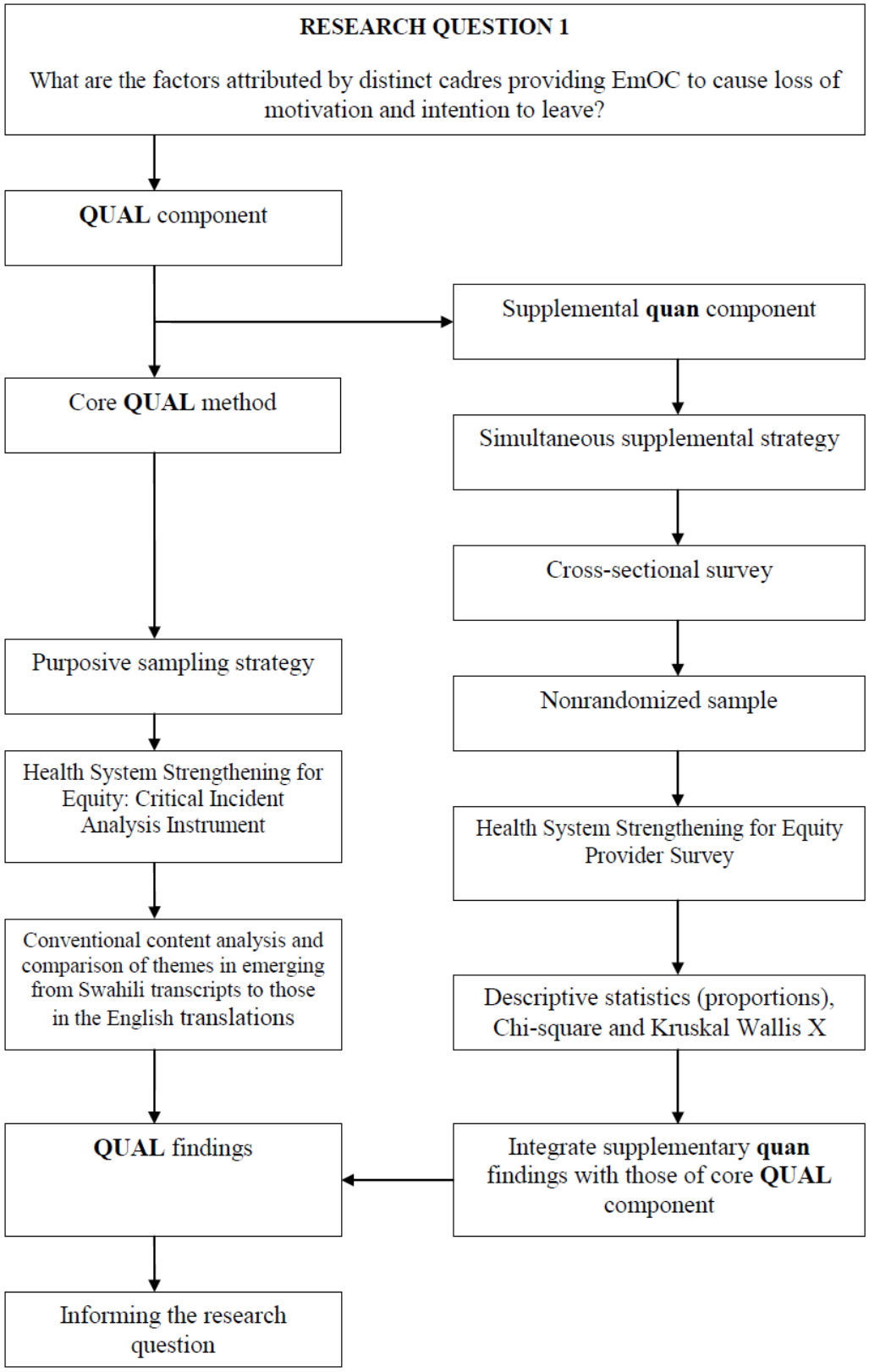
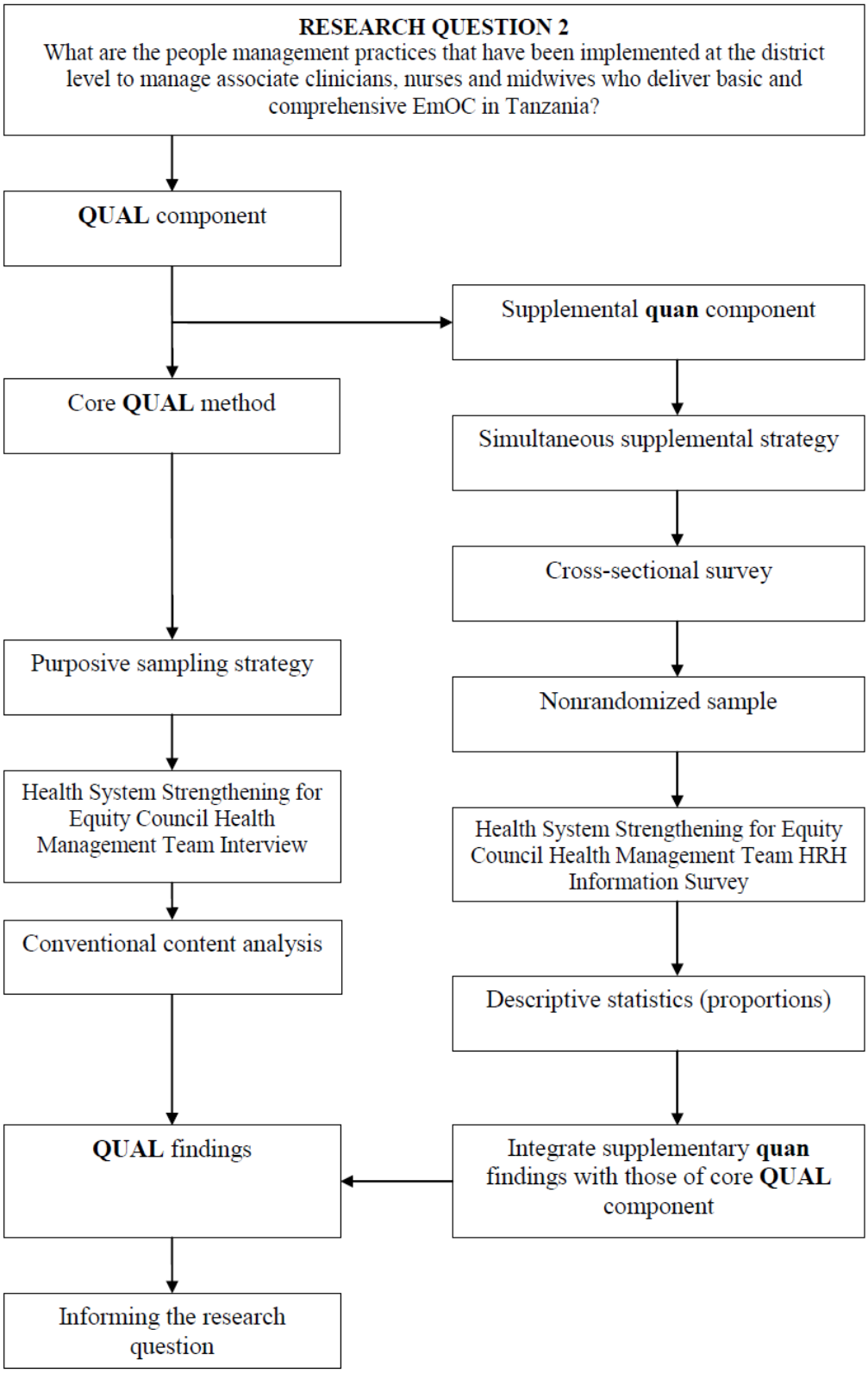


Figure 8 Convergent mixed methods approach pertinent to Research Question 2



Data Collection

The data collection methods detailed in this section refer specifically to procedures applied in the parent HSSE study. Instruments developed by the HSSE research team were used to elicit survey and interview data. The Council Health Management Team Human Resources for Health Information Survey and Interview guide were used to gather routine data on human resources for health management practices from core CHMT members. The CHMT HRH Information survey is a 32 item questionnaire comprising dichotomous, nominal, and ordinal (likert type) questions. The HSSE Provider Survey and Critical Incident Analysis interview guide were used to elicit data from ACs, nurses and midwives. The HSSE Provider survey is a 298 item questionnaire comprising dichotomous, nominal and ordinal (likert type) questions, as well as 15 items that were part of a discrete choice experiment. Semi-structured interviews conducted by trained interviewers were the primary data collection methods for the qualitative arm of the study.

Data was collected during the months of October and November in 2008 once the requisite IRB approvals were attained. Members of CHMTs were identified after reviewing relevant policy literature, tapping into knowledge of the local research team and snowballing techniques. They were contacted via email or telephone and an appointment scheduled for the interview. Clinician participants were identified by interviewers at their place of work within the clinical milieu of target facilities. After the process of informed consent, both CHMT members and clinician participants who volunteered were enrolled in the study. Interviews were conducted in a quiet and private space, usually in the facilities where participants worked. In some cases, interviews were

scheduled to accommodate a participant's preference, such as during their day off or at an external location, separate from the health facility where they work. Interviews were conducted in both English and Swahili and all responses were audio recorded. The interviews were transcribed verbatim. Interview transcriptions in Swahili were translated to English by a translator (not the interviewer) prior to data analysis.

Qualitative Data Analysis

The qualitative components of the parent HSSE study generated the volume of data that was used in this secondary analysis. In the secondary analysis, interviews were systematically compressed or coded into categories allowing an inference to be made from these categories (Hsieh & Shannon, 2005; Johnson & LaMontagne, 1993; Stemler, 2001). Conventional content analysis was used to develop the coding scheme and analyze the data as follows:-

- Read interview transcripts repeatedly to achieve immersion
- Derived codes by extracting exact words to represent concepts
- Labeled codes
- Sorted codes into related categories
- Prepared exhaustive report of findings, including exemplars for each code

Two researchers schooled in qualitative methods worked closely together to generate the codes and subsequent categories. The level of agreement reached between both researchers was measured. Additionally, themes from a sample of 20 interviews transcribed in Swahili were compared to the English transcriptions by the primary researcher who is fluent in both Swahili and English. NVivo qualitative analysis

software version 10 (QSR International, Victoria, Australia) was used to store and analyze data for codes.

Methodological Rigor

The primary objective of this secondary analysis of qualitative data from the parent HSSE study was to present a true representation of CHMT's HR management strategies and the experience of ACs, nurses and midwives in their own words. In order to accomplish this goal, several techniques identified by Speziale and Carpenter (2007) to enhance methodological rigor were incorporated into the study design. Trustworthiness was ascertained by consistently adhering to data analysis procedures outlined previously that are in keeping with content analysis methods. In order to maintain credibility, the primary researcher engaged in peer debriefing activities in order to test and discuss emerging inferences. To boost the dependability of findings, triangulation of methods was used to corroborate and augment participants' statements. Confirmability of results was established through detailed records, comprising interview transcripts and notes, which serve as an audit trail for the reader and offer insight into the reseacher's thought process. Finally, a report consisting of the detailed methods and procedures as well as a rich collection of direct quotes was prepared and disseminated to facilitate the transferability of findings.

Quantitative Data Analysis

Demographic characteristics of survey respondents were summarized. Descriptive statistics were computed to explain the outcome measures of interest, which were then used to supplement the inventory of qualitative responses. Proportions were calculated to gauge the percentage of discrete cadres citing any one reason as the cause of

their intention to leave (Research Question 1). The Chi-square test was calculated to examine whether there were statistically significant differences to categorical responses between cadres (Le, 2009). The Kruskal Wallis test, a non-parametric measure, was used to test for differences across ordinal responses to questions about various elements of people management practices endorsed by cadres. Subsequently, pairwise Mann-Whitney U tests were conducted to examine which cadres had statistically significant responses with the Bonferroni correction applied for multiple comparisons (Elliott & Woodward, 2007). Similarly, proportions were calculated to assess the percentage of members of CHMTs endorsing items from the CHMT Interview and HRH Information Survey (Research Question 2). Data were analyzed using SPSS version 18 (IBM, New York, New York).

Human Subjects Considerations

The Institutional Review Boards (IRB) at Columbia University and Ifakara Health Institute in Dar-es-Salaam, Tanzania approved the parent HSSE study prior to commencement of data collection. This secondary analysis of data from the HSSE study was deemed exempt by the Columbia University IRB. During each stage of the study, steps were taken to protect participants' confidentiality. All responses to the parent HSSE study were de-identified and each participant was assigned a unique identifier in the form of a code number. Electronic and hard copy surveys were kept in a locked file cabinet and password protected storage device where applicable and only approved members of the research team had access to both. Findings were discussed and reported in the aggregate. Where reports included direct quotes to emphasize key points, these quotes were de-identified to preserve anonymity and decrease the likelihood that the

narrative can be linked to individual participants. At the conclusion of the study, all related material was archived by the primary investigator in the form of encrypted digital files.

Chapter IV

RESULTS

Critical Incidents Attributed to Induce Loss of Motivation by Associate Clinicians, Nurses and Midwives

This chapter presents the results of Question 1: what are the critical incidents attributed by distinct cadres providing EmOC in Tanzania to cause loss of motivation and intention to leave? Findings from the qualitative analysis of critical incidents reported in interview data obtained from 83 ACs, nurses and midwives as the cause of loss of motivation and intention to leave their current job are discussed. Also summarized are findings from the quantitative surveys of 847 providers representing distinct cadres, from which the sample of 83 ACs, nurses and midwives was drawn. The complement of both qualitative and quantitative results aimed to provide a comprehensive description of the practice environment experienced by respondents in a manner consistent with the mixed-methods approach. Demographic characteristics of the 83 respondents are presented in Table 1.

Table 1

Demographic characteristics of ACs, nurses and midwives (n = 83)

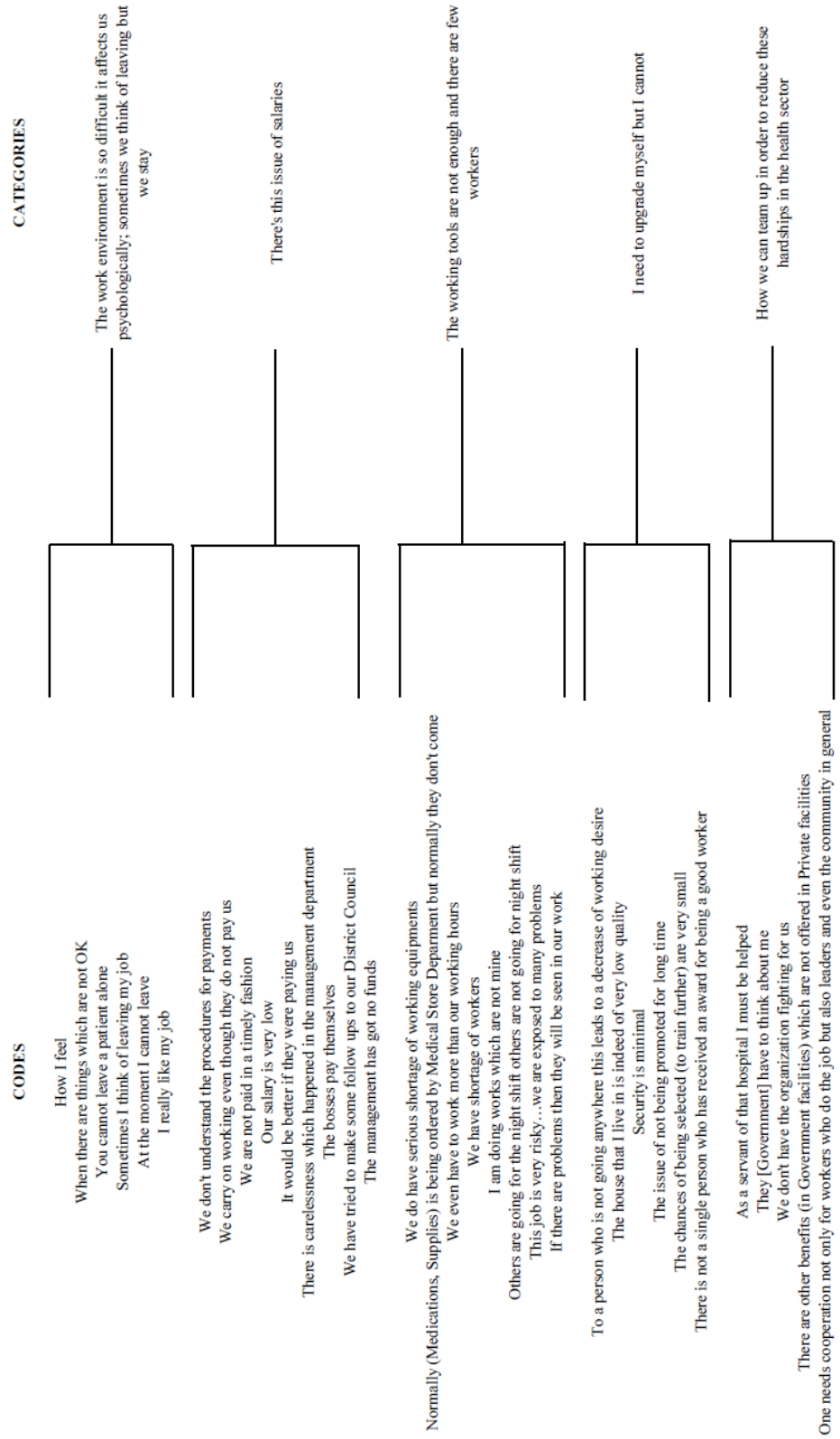
Gender	Occupation	Region
Female 57%	Nurses 42%	Mbeya 23%
Male 25%	Nurse Midwives 32%	Iringa 15%
Unassigned 18%	Clinical Officers 13%	Mwanza 13%
	Medical Attendants 8%	Tanga 13%
	Assistant Medical Officers 5%	Pwani 12%
		Dodoma 11%
		Mtwara 7%
		Tabora 6%

Qualitative Results

The inventory of 83 interviews drawn from ACs, nurses and midwives across 8 regions of Tanzania was compressed into thematic and referential units. These thematic and referential units became the initial coding scheme comprising 35 codes whose labels were derived from text contained in the interview narratives. Individual codes focused on related topics were grouped together to form the following 5 categories: *The work environment is so difficult it affects us psychologically; sometimes we think of leaving but we stay, There's this issue of salaries, The working tools are not enough and there are few workers, I need to upgrade myself but I cannot,* and *How we can team up in order to reduce these hardships in the health sector.* Inter-rater agreement between the two researchers was high (98.96%). A summary of the content analysis procedure described is illustrated in Figure 9.

Themes emerging from the Swahili transcripts did not differ in essential meaning when compared to the English transcripts. However, the richness of the linguistic expressions in the Swahili transcripts did not easily transfer to the English translations. In other instances, the translator omitted cultural expressions used in the Swahili language from the English transcripts. For example, one Public Health Nurse spoke about her professional calling, stating "huo wito wangu kutoka moyoni." This phrase directly translates to "that calling in my heart." The English transcript reads "this vocation." Despite the altered representations, the validity of the study was maintained because the essential meaning of the experiences narrated by the ACs, nurses and midwives was not lost.

Figure 9 Critical Incidence Analysis Coding Scheme



The work environment is so difficult it affects us psychologically; sometimes we think of leaving but we stay. Descriptive narratives about unpleasant characteristics of the work environment were intertwined with statements portraying the main result of enduring unfavorable experiences as the burden placed on an individual's psyche. One Public Health Nurse spoke of a time when she accompanied a patient experiencing a complication to a higher level of care, a dangerous trip requiring one to take a ferry.

> One day the boat machine failed while we were two people in it just me and the captain. On our way back from the hospital so patient was at hospital. Boat was moving to the deep sea, I said my God my children will not [find] my dead body. We went far but luckily we were followed by another boat. It was 3:00am.

According to the same Public Health Nurse, although the health authorities are aware that personnel are exposed to hazardous encounters, requiring one to go above and beyond as she did in this incident, these desirable behaviors are often not rewarded, which only lessens motivation. She stated that

> …there is a problem of a ferry. Boats are not strong to the extent DMO (District Medical Officer) said [that] I don't trust these boats but we are risking our lives yet we are not paid. Just think about it even if it is you. Honestly will you have high working morale?

At the same time, personnel facing such grave danger placed the well being of patients above their own need for personal safety. The same Public Health Nurse rationalized the decision to ensure safe transfer of the patient that "…you cannot say to the patient just go alone. What if he/she will get problem? Therefore, you will feel like escorting them to hospital." This sentiment emerged repeatedly in the interviews. Often when events pushed providers to the edge and the thought of giving up their jobs came up, commitment to patients diminished the urge to leave. As one nurse midwife put it

> …but even if I shift [change jobs], the one who [is] affected is not the government it is the patients so even if I decide that I'm leaving them alone, or say I get angry

> and stop attending patients, citizens will suffer. It could be that he or she is my neighbor or my relative…

Additional justifications for decisions to remain in their current jobs included family commitments, nearing the age of retirement, loving the profession and the perception that organizational shortcomings were similar across facilities in Tanzania so leaving would not exactly offer any relief. Having decided to stay in their jobs, participants provided a glimpse into the support network used to cope with the difficult working environment. Hope and religious faith were common coping mechanisms. One nurse midwife state that "maybe God has planned me work in this condition so as to gain more days to live in the world." A medical attendant proclaimed that she "live[s] with the hope that maybe in the future things will change." Others, including one clinical officer spoke of "accept[ing] the environment," while more reported leaning on colleagues and family members for moral support.

There's this issue of salaries. Late salaries, partial payment of salaries, low salaries and only marginally understood salary structures were a major source of discontentment for respondents. One clinical officer interviewed in October 2008 reported that "from May we have not been paid." In addition to late disbursement of funds, some respondents described bureaucratic hurdles encountered before pay rates were amended to reflect promotions or upgrades to a higher cadre. Another clinical officer stated that

> …we were told that in July this year we could be paid the new salaries which increased on January this year, but you see the first thing which demoralized me is the month we expected to get the increment we didn't get it.

Allowances for extra hours worked were elusive during instances when providers were required to work outside of their normally scheduled hours, for example periods of high patient volume or acuity. One assistant nurse explained that he was

> …here [at the facility] since yesterday. I was also [here] in the night shift and I also do these activities [participate in the research study] in the afternoon, but even if you request for overtime payments, you are just told to fill in the forms but you don't get paid.

Pursuing payment for overtime and other promised allowances, such as reimbursement for personal funds spent to hire a car to transport patients to higher levels of care when an ambulance was not available, often led to roadblocks, another source of frustration. The same assistant nurse reported that "we have tried to make some follow ups to our district council but we were told that it will happen later. When we went again were told to try again next month." Further complicating lack of payment is the added expenditure of following up with HRH authorities. The experience of one nursing officer illustrates this scenario the best.

> I went to the DMO and they asked me to write a letter requesting my salary as a loan. So every month I am requesting for my salary as a loan which disturbs me because it requires me to move from my working center to DMO and come back. Also to make follow up at the council which is very difficult to the extent that sometimes I have to go and borrow some money for bus fare while am not sure if will get that money back.

Sometimes respondents who were following up with district HRH authorities for their salaries reported an incomplete understanding of salary structures, which limited their ability to effectively advocate for themselves.

Participants also verbalized not being able to make ends meet due to low salaries. One nursing officer stated that "our salary is very low and is not enough to cover our situations in real life." The importance of timely and adequate salaries was also

discussed within the context of challenging work environments described previously. A nurse midwife reasoned that

> If there could be a motivation, then people couldn't get tired. You could hear good news if there could be motivation. People could feel very good because they work and they know their right will be given. They could think about job because after job they get paid. If one work without anything then this makes them be tired. Although we are told that nursing job is like a sacrifice, but is not because the person cannot work without getting money. Because without money you cannot live, eat, take your childrens [sic] to school, buy clothes.

Some respondents described feeling resigned to their fate. A nurse midwife summed up her opinion that "these are normal problems and one just has to face them." Others trusted that their faith in God would see them through difficult times and expressed hope for a better future. Still, others pointed to inefficiencies in the HRH leadership that contributed to their troubles with salaries. In the words of one nursing officer

> I think there is carelessness which happened in the management department. Which people cannot look at employee's files and say this employee has many responsibilities and hence we need to increase the salary just because of the responsibilities they have?

At the same time, it was understood that those in positions of authority were not exposed to same difficulties experienced by their subordinates. A nurse midwife explained that

> You just can't understand sometimes for those seniors [in authority], even if he went [to district authorities] last week, this week he will just be paid. But for those who have been waiting for six months we get told that there's no money. But for him, there is no problem because he is the boss and the one authorizing it. Sometimes you just find you are claiming twenty five thousand or thirty thousand and you are told "no money." But for him who is senior, definitely the amount to be paid is big, one with three hundred thousand, ones with two hundred thousand, five hundred they all get paid. But ones claiming fifteen and fifty thousand, we just get told that there's no money. Practically the work becomes very tough.

Bottlenecks in the financing mechanism at the central government level were also held responsible for unpredictable disbursement of funds for salaries. A nursing officer described

> The reason is the hospital depends on cash from the council which it obtains from the Ministry of Health and give to us for buying hospital's requirements and the remaining to be use for paying allowances but the money is not enough. To do all those stuffs [sic] so the hospital found to have many debts and we can't be paid too.

The working tools are not enough and there are few workers. Personnel shortages were apparent in the accounts of interview participants. Also emerging from the descriptions of critical incidents were the detrimental effects to health services delivery and personnel workload. To illustrate, one nurse described the situation as follows

> We have shortage of workers but when they come they want to see you have accomplished their targets while you are all alone. So it is very difficult to accomplish all the targets, for example at MCH [maternal child health] clinics there are many activities. At MCH clinic I am alone. There is a side of mother and child where there is antenatal, check up for the children on the things they want to be checked on and for a mother there are a lot of things that are needed to be checked. There are many registers to be recorded. In recording you may find that there are a lot of things that you cannot keep them in your mind, you can forget other things. When you have a lot of works to do you become tired. That means your mind is tired.

Another instance is described by an assistant nurse, the sole provider managing multiple departments when a patient suffered postpartum hemorrhage, an obstetric emergency, and ultimately died.

> …I was all alone so I had to move from this ward to the other like that. When it arrived around four as I was from attending the babies ward for the four am syringe. As I was approaching the door, I heard I was called that nurse come this way. When I had gone, I found this woman who has just gave birth in a very bad situation. So I had to call the doctor and the doctor told me to put her a drip but there was no drip so I had to rush back to the doctor to take [the drip] and I did

> but when I got back she was even worse. So I had to come call the doctor but bad enough is when we got back to realize that she was already dead.

Due to scarcity of personnel, respondents reported that they often worked longer hours than scheduled in order to ensure that all shifts were covered. Some participants expressed dissatisfaction that they were not compensated for working these additional hours. One medical attendant reported that

> Some people go for leave and others are on night offs and you find others are away for seminars. So even if you were on in the morning shift, there may not be someone to relieve you in the evening hours. You just have to continue working until you get someone to take over so that you can go and rest.

Lack of protective barriers for personnel exposed to potentially infectious body fluids encountered in the delivery room as well as irregular stocks of equipment, medication, water, electricity and other supplies placed both patients and personnel at risk for harm. As depicted in a previous quote, in life or death situations, precious moments were spent looking for emergency medications or supplies instead of delivering life-saving interventions. An unpredictable supply chain sometimes delivered insufficient quantities of necessary resources. One nurse midwife stated that "when they order it they bring very small number to us and you find that we have so many pregnant woman so you find them finishing in just one month."

On other occasions, health systems constrains limiting availability of necessary resources were compounded when patients and family members sometimes became hostile as to endanger the well being of personnel. One nursing officer on the night shift described an encounter with a patient's husband who while waiting for his wife to be assessed "…continued with his words, then suddenly I saw him grabbing my spectacles from my face." Another registered nurse reported that "what happens to me are these

complains. They do complain a lot and sometimes they insult you with harsh words." Additional difficulties encountered with patients included those who were patrons of traditional healers but resorted to modern medicine as a last attempt. With these patients, limited understanding of current practices provides an opportunity for conflict with health providers to arise. One clinical officer explained that

> Large part of our patients come to hospital after have had started traditional treatments. They go to traditional healers so when they come here and you try to explain to them the causes of their illnesses, normally they think that now you doing something wrong according to what they are used to do and they start disvaluing [sic] your work…

The personnel in our sample expressed that in their interactions with patients, the effects of all of the health systems shortcomings discussed were inevitably apparent in the quality of care delivered. One nursing officer described the situation as follows

> The working tools are not enough and there are few workers who have been trained here so you find that patient care is not done to an expected standard because there are few trained workers.

I need to upgrade myself but I cannot. Opportunities for in-service training and for further professional development, such as attaining a higher academic qualification, were deemed out of reach for many participants. Several reasons attributed to push educational goals further beyond reach include obscure selection procedures utilized by superiors and ineligibility based on tenure and basic education requirements.

The health workers interviewed described ways in which their aspirations to meet and excel at their professional obligations were thwarted by existing health system constrains. One nurse midwife described her attempt to develop a work schedule that ensured adequate personnel coverage when health worker shortages in effect prevented a satisfactory result and provoked tension amongst colleagues as follows:

> …even those whom I approached to work in the night, although they refused to work I did not like the kind of picture they built. Firstly, it was an anger and hatred attitude towards me. You are working in a situation with anger and hatred. Our intention is to save people's lives but not to build anger.

The effect of the malaise injected into under-resourced milieu when health workers are over-stretched was best described by an assistant medical officer who stated " if they are not motivated then how can I manage to do all the work myself because we work as a team so when others are not motivated it will obviously affect the whole working system."

Another domain attributed by respondents to further demoralize them was the dire housing situation, particularly in rural areas. A nurse midwife described the perils encountered

> the environment in which we are living for instance if you are called in the night, there are not houses for employees here. I stayed there a second village from here. There was a day when I was called at 3am in the midnight to come to attend a pregnant woman who had failed to give birth. I came with a kerosene lamp from there in the night...I did not have a torch…Don't you see that this is a very dangerous environment and I was just called on the phone? You come on foot without even a bicycle or a vehicle and this place is very dangerous.

How we can team up in order to reduce these hardships in the health sector.

An emergent theme from the collective interviews was the view that the best solutions to problems inherent to the health sector can be created if the government sought valid, well thought out approaches in partnership with frontline health workers. One public health nurse commented

> I am giving a suggestion. I would suggest that the research you are conducting, we would request that if it is possible people in the ministry should be involved directly. We know that these are the people who make policies, but I think they are not sure if their policies are appropriate. They would come directly and ask us questions and give them our views. In this way I believe that the policies which they make would be better. But until now I see that these policies cannot be implemented. This is because they said that each village should have a dispensary

> but until this time the existing dispensaries there is one health worker in average, will they get health workers for the health facilities they are building?

Often, participants used the interview as an opportunity to address their concerns to authorities in the manner exemplified by one clinical officer: "now we beg the government to think about us." They asked that policies formulated by health authorities reflect consideration of the real difficulties encountered in the clinical practice setting and referred to their closely held view that the day to day work was arduous but valuable. For example, a nurse midwife implored for reinstatement of a risk allowance as follows:

> we are asking them to consider us on that some years passed as a nurses there was a certain payments made by government. They give us a kind of allowance. I don't remember exactly the name of that allowance. It is like a risk allowance that made us happy and feeling that we were real at working place.

The view that the government is the central actor and reservoir of technical, fiscal and human resources within the health sector was evident in the quest for government jobs. It emerged from the interview data that employment in the public sector, thus in government owned and operated hospitals, was preferred by some over private sector jobs. One clinical officer stated, "there are other benefits which are not offered in private facilities." A medical attendant claimed "we work here because we did not get the chance to be employed by the government."

Quantitative Results

Demographic data. Respondents to the HSSE Provider Survey were mostly female, aged between 26-55 years of age and engaged in full-time employment at a government health facility. Demographic characteristics of respondents are summarized in Table 2 and their respective cadres are presented in Table 3.

Table 2

Demographic characteristics of ACs, nurses and midwives (n = 847)

Demographic characteristics	N (%)
Female	627 (74.0)
Age 26-55 years	716 (84.9)
Full time employment	717 (84.7)
Permanent employment status	804 (94.9)
Employed in government facility	744 (87.8)
Highest level of education certificate/diploma	469 (55.4)/230 (27.2)
Highest level of basic education standard 7/form 4	210 (24.8)/547 (64.6)
Mean length of time at facility	8.2 years
Mean tenure as a health worker	15.4 years

Table 3

Cadres of Survey Respondents (n = 847)

Cadre	N (%)
Enrolled nurses	5 (0.6)
Registered nurses	150 (17.7)
Enrolled midwife	247 (29.2)
Registered midwife	20 (2.4)
Enrolled public health nurse	58 (6.8)
Registered public health nurse	11 (1.3)
MCH Aide	25 (3.0)
Medical attendant/Nursing assistant	154 (18.2)
Clinical officer	99 (11.7)
Assistant medical officer	68 (8.0)
Medical officer (generalist physician)	7 (0.8)
Doctor (Obstetrician/gynecologist)	1 (0.1)

Survey data. A summary of responses to survey data is presented in Table 4. The cadres of health workers reported in Table 3 were collapsed into 5 categories so as not to violate statistical assumptions of the Kruskal Wallis test requiring at least 5 cases per group (Polit, 2010). These were: nurses, midwives, MCH aides, clinical officers and

assistant medical officers. Medical officers and the specialist obstetrician/gynecologist were excluded from the analysis.

Intention to leave. Rating their level of agreement on a scale of 1 (strongly disagree) to 5 (strongly agree), responses to the following items did not differ significantly between cadres: *I have seriously thought about leaving this hospital/clinic* (χ^2 =0.744, df 4, p = 0.946) and *if it is up to me I will continue to work for this hospital/clinic for quite some time* (χ^2 =7.291, df 4, p = 0.125).

Table 4

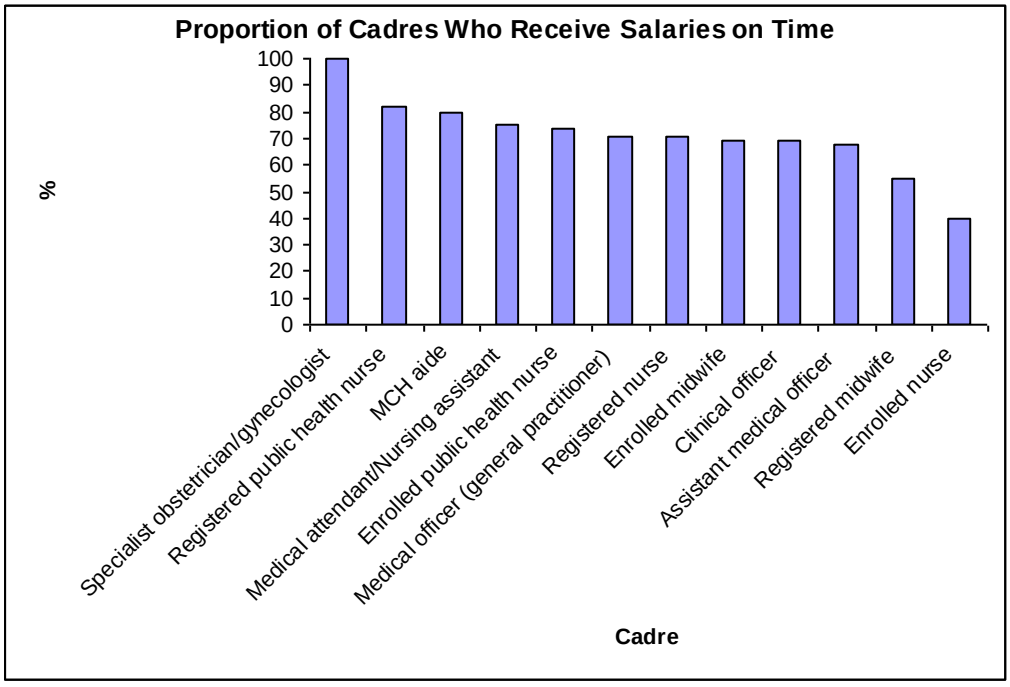
Responses to Workload, Supervision, Appraisal, Communication, Staffing

Item	N[a]	Kruskal Wallis χ^2	df, p[b]
I feel my job conditions are not allowing me to perform at high levels	795	7.793	4, 0.099
I always reach my performance targets[b]	**798**	**20.342**	**4, 0.000**
If it is up to me, I will continue to work for this hospital/clinic for quite some time	791	7.219	4, 0.125
I have seriously though about leaving this hospital/clinic	780	0.744	4, 0.946
My work schedule is fair[b]	**790**	**17.305**	**4, 0.002**
I consider my workload to be quite fair	786	7.650	4, 0.105
I think this is a fair supervision system[b]	**789**	**13.434**	**4, 0.009**
I am satisfied with this supervision system[b]	**785**	**12.783**	**4, 0.012**
The feedback I receive is unfair	784	7.747	4, 0.101
I think this is a fair promotion system	776	5.001	4, 0.287
I am satisfied with this promotion system	772	3.256	0.516

[a] N = number of responses out of 847 surveys received.
[b] Statistically significant at 0.05 level

Salary. Most respondents (79.6%) reported that they do not feel well paid for the job that they do. Twenty seven percent of participants stated they did not receive their salary on time. Figure 8 illustrates the proportion of cadres who receive their salary on time. There was no statistically significant different between cadres who reported receiving their salaries late (χ^2 = 21.044, p = 0.518). For 30.7% of respondents, the last salary received was only a portion of their full salary. Of these, 47% received less than half the amount of their salary.

Figure 10 Proportion of cadres who receive salaries on time



Supervision. Majority (69.3%) of respondents reported that they receive adequate supervision. On a scale of 1 (strongly disagree) to 5 (strongly agree), responses to the item *I am satisfied with this supervision system* differed significantly across cadres (χ^2=12.783, df 4, p = 0.012). Specifically, MCH aides had statistically significant higher scores than midwives (p=0.001). Similarly, perceptions of the fairness of the supervision

system differed significantly across cadres (χ^2 =13.434, df 4, p = 0.009) with MCH aides reporting statistically significant higher scores than midwives (p = 0.001).

Job description. Sixty eight percent of respondents reported that they have a job description. There was no statistically significant difference between cadres endorsing that they have a job description (χ^2 = 45.45, p = 0.07). For 60.7% of respondents, their job description adequately describes their duties. Of those without a job description, 92% agree that it would be useful to have one.

Workload. On a scale of 1 (strongly disagree) to 5 (strongly agree), responses to the item *my work schedule is fair* differed significantly across cadres (χ^2 =17.305, df 4, p = 0.002). Specifically, nurses (p=0.001) and midwives (p=0.001) perceived a less fair work schedule compared to assistant medical officers. Responses to the item *I consider my workload to be quite fair* (χ^2 =7.650, df 4, p = 0.105) and *I feel my job conditions are not allowing me to perform at high levels* (χ^2 =7.793, df 4, p = 0.099) did not differ significantly across cadres. Meanwhile, responses to the item *I always reach my performance targets* were statistically different across cadres (χ^2 =20.342, df 4, p = 0.000). Specifically, MCH aides reported statistically significant higher scores than nurses (p=0.000), midwives (p=0.002) and assistant medical officers (p=0.001).

Summary

The foremost sources of job related dissatisfaction amongst ACs, nurses and midwives revealed in the interviews were factors that are central to HRM functions. Concerns about late or low salaries, scarcity of resources and personnel, disproportionate workload, uncertain access to career advancement, weak infrastructure, security issues and the resulting burden on psyche due to combined work-related problems were

recurring themes. The ACs, nurses and midwives who were interviewed expressed means with which they cope with the obstacles encountered in the workplace, which included tapping into their social networks and religious faith. Although many reported that they have thought about leaving their job, the inclination to stay was stronger. The reasons cited for the decision not to leave were family ties to the area, commitment to the profession, lack of better options (other facilities in Tanzania have similar problems) and holding on to hope that the future would be better.

Survey responses obtained from the larger group of 847 respondents from which the interviewees were sampled mirrored the qualitative themes. Dissatisfaction with low, late and partial salaries was apparent in the quantitative data as in the interview data and highlighted as a major cause of low motivation. Additionally, statistically significant differences between some of the cadres were observed in items measuring perception of workload and supervision systems.

Chapter V

RESULTS

Human Resources Management Practices Used by Council Health Management Teams

This chapter presents the results of Question 2: what are the people management practices that have been implemented at the district level to manage ACs, nurses and midwives who delivery EmOC in Tanzania? Findings from interview data obtained from 37 members of CHMTs comprising district medical officers, reproductive and child health coordinators, district health secretaries, district nursing officers, district health coordinators, assistant district medical officer and nursing office. Fifty eight percent of interviewees reported training in HR management; the extent of training was reported to range from short courses lasting a few days to postgraduate degrees in public health and public administration. Survey data consisted of HRH information assessments performed in 48 districts.

The purpose of this analysis was to elicit from the reservoir of qualitative and quantitative data people management practices utilized by CHMTs based on Wright et al's (2001; 2007) basic SHRM components model depicted in Figure 2. All interviews were read repeatedly to achieve immersion and derive relevant codes, which were then sorted into categories. Themes presented in this chapter are the categories relevant to Wright et al's (2001; 2007) basic SHRM components model.

Qualitative Results

The following six themes emerged from the CHMT interviews that described their people management practices: *We have a shortage in all the cadres; There should*

be a lot of training; We are using OPRAS (Open Performance Review and Appraisal System; *Feedback is provided and good workers are rewarded; The correlation between workload and workers is that the work is too much compared to number of health workers;* and *We have a wide degree of autonomy.*

We have a shortage in all the cadres. A common theme in the CHMT interview data was the widespread shortage of health workers in all facilities. A comment made by one district medical officer confirmed findings in the surveys that cadres with lower training were more readily available than cadres with higher levels of training. He stated that "we have many medical attendants compared to other cadres." The causes of personnel shortages varied from difficulties with recruitment and retention to implementation of a policy to increase the number of health facilities. A district health secretary explained that

> we have few health workers while we have great demand. We had great shortage before the decision to build dispensaries in each village and health center in each ward. Now the problem has increased, it became wider but we have few workers.

Factors hindering recruitment and retention of sufficient personnel were enumerated as late payment of salaries and subsistence allowance, rural settings with limited infrastructure, such as traditional style housing not connected to the electrical grid, ill equipped facilities and family commitments. CHMT members spoke about newly hired employees who did not report to their post; not reporting to post was attributed to the same reasons mentioned previously. Socio-cultural norms dictating that unmarried personnel are isolated from the community were also reported to hamper retention in rural underserved areas.

In addition to critical shortages of health workers, it became clear from the interviews that significant proportions of personnel did not possess appropriate qualifications for their current job. According to the CHMT members interviewed, the estimated proportion of workers who possess appropriate qualifications ranged from 20% to 70%. A major reason leading to an inadequately qualified workforce is the delegation of roles. In this informal and unauthorized arrangement, workers with less training are obligated to assume responsibilities traditionally reserved for cadres with higher training in order to accommodate surges in patient volume or to cover for an absent staff member.

There should be a lot of training. Almost all the districts evaluated were reported to have a formal plan for providing in-service training to staff members. However, when CHMT members were interviewed, it was clear that there were barriers to making these opportunities available to all staff despite the expressed desire for current knowledge in their field. For example, a district health secretary reported that "…if the station has one person and that person needs to go for training, this is a problem." It was also clear that opportunities for in-service training were not equal across cadres. Clinical officers, nurses and midwives were reported by CHMT members to benefit the most from seminars and workshops. This was especially true for providers working in reproductive and child health specialties because these are key priority areas in which there is a keen focus on boosting the capacity of health workers.

On other occasions, staff members attended in-services on important topics, such as malaria which is a key focus area for Tanzania, but were then re-assigned to work in a different unit where they could not apply new knowledge acquired. One district health secretary explained it as follows

> …but after she returns from the malaria course you find she goes to do something else not relating to malaria. So after a short time those learned skills starts to. disappear due to issue of not using them.

Additionally, there were reports of cases where health workers learned skills that could not be applied to their particular health facility because necessary resources to perform those skills were lacking.

We are using OPRAS (Open Performance Review and Appraisal System).

Supervision was identified as a key function of CHMTs. The process of evaluating individual personnel performance was described as follows by a reproductive and child health coordinator

> There is a certain form called OPRAS. That form is supposed to be filled with the year[’s] aims so every worker is supposed to work accordingly to this form. So the head of department is supposed to make follow up if those aims are fulfilled and if not there should be reasons why so.

Assessment of individual performance consisted of visits to facilities during which observations are made at regularly scheduled intervals and compared against a checklist. In some cases, respondents spoke of finding unmanned health facilities upon arriving for a supervision visit or finding that health workers were so overwhelmed with patients that they assumed a clinician role to assist in relieving the workload.

While the OPRAS tool was deemed useful as an objective means of measuring performance, particularly when compared to subjective methods utilized previously, there were also limitations to its full implementation. A major hurdle was disagreement or partial understanding in the setting of performance targets as in this example of one district medical officer. He disputed that proportion of coverage was an appropriate performance measure when real effectiveness of a vaccination campaign should be measured against incidence of the target illness.

> …unfortunately you find a health sector is nonprofessional it means a DMO [district medical officer] should be assessed by RMO [regional medical officer] but you find a DED [district executive director] is an economist or human resource officer. He/she is assessing a doctor that becomes somehow difficult. For example if you tell a doctor that I have vaccinated like to see the effectiveness of vaccination, you need to stay 4-5 years you see children do not get diseases like measles…

Feedback is provided and good workers are rewarded. According to the members of CHMTs interviewed, personnel were notified of expected standards of performance through various forums. These forums include morning staff meetings, published Health Management Information System reports and during workshops and seminars. Awards for exemplary performance based on expected levels were reported to be distributed on May Day (international workers' day).

> Of course for the best performance there is a gift. For example this year during May Day we gave a gift to one of our workers who was in delivery. She was the best worker. So there is something like that which also motivates people.

CHMT members stated that they communicate with health workers whose performance was below par through written correspondence or verbal warnings. Some interviewees spoke of handing out "punishments" such as reductions in salary and "demotions." A district medical officer revealed that

> …it is very difficult to dismiss a health staff in such situation so you bear with him/her, you correct one another there, you write letters to each other. You counsel him/her, you tell him/her that at that stage we must dismiss you otherwise it takes a lot of time…

The correlation between workload and workers is that the work is too much compared to number of health workers. Although 68% of CHMT members reported that their districts possessed mechanisms to ensure that the number of staff members was matched to workload, interview responses overwhelmingly showed that this was

impossible to accomplish in practice. One Reproductive and Child Health Coordinator stated that

> …this is because the workload is heavier than ...the workload is bigger. You will find one health provider works in antenatal, to provide vaccination, weighing children, providing counseling to mother with children, providing counseling to mothers to come for family planning. One person will provide all these services. Still there are mothers who want to give birth. Therefore you will find that the workload is bigger than workers who are there.

Respondents provided additional details on the strategies they applied to determine workload. Among these were objective measures comparing actual numbers of workers in service against set Ministry of Health targets and subjective assessments, such as patient complaints of wait time.

We have a wide degree of autonomy. A hierarchy in the management of HR issues within the district was clear in both the interviews and the survey responses. Members of CHMTs described playing an advisory role to the district executive officer who possesses final decision making authority in the district. One district medical officer explained that

> …there is no direct decision. As I said earlier director is the one who is responsible for employing and firing or punishing. As heads of department we can only advice or suggest therefore we must advise our director. So we are advising but we cannot make decision on human resource. We are advising like we have this problem of we have this shortage so we advising people of this cadre should be employed or we have this problem so we are suggesting this person has to be transferred to a certain area. Many times we are advising our director.

Members of the CHMTs reported that frequent and constant communication with the office of the district executive officer ensured that their in-depth knowledge of the real HR situation on the ground was integral to policy decisions made at the district level.

Quantitative Results

Staffing. Data on recommended and actual staffing levels for dispensaries, health centers and hospitals was available in 21-34 of the 48 districts assessed for each of the 7 cadres (see Table 5). Interestingly, 65% of districts reported having enough staff to provide quality patient care.

Table 5

Number of districts reporting level of staffing for each cadre (per type of facility)

	Dispensaries	Hospitals	Health Centers
Assistant Medical Officers	22	30	32
Clinical Officers	34	29	31
Medical Officers[a]	0	30	22
Medical Attendants	33	29	30
Registered Nurses/Registered Nurse Midwives	25	30	32
Enrolled Nurses/Enrolled Nurse Midwives	29	26	30
MCH Aides	21	21	21

[a] Dispensaries are not typically staffed with medical officers

Figure 11 Proportion of districts with hospitals staffed at the recommended levels

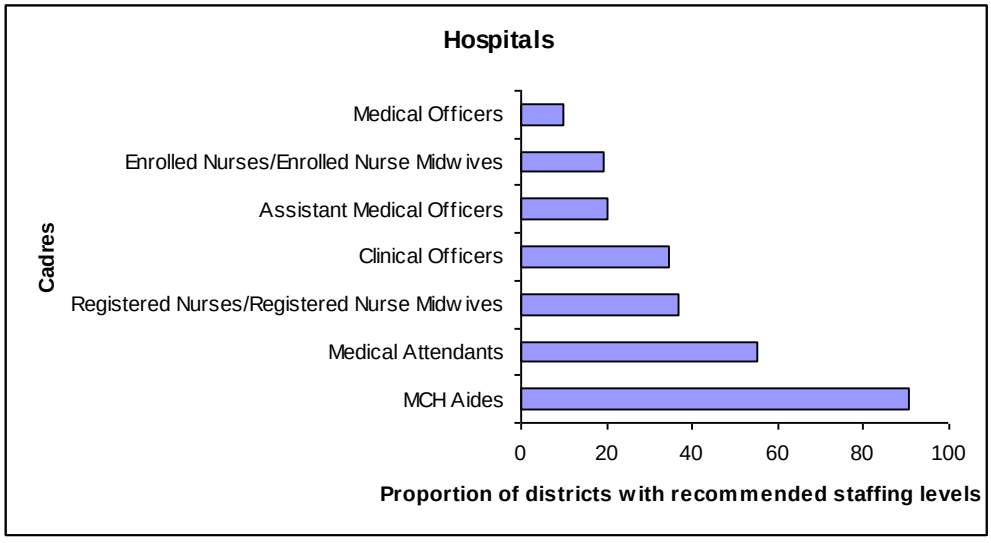


Figure 12 Proportion of districts with health centers staffed at the recommended levels

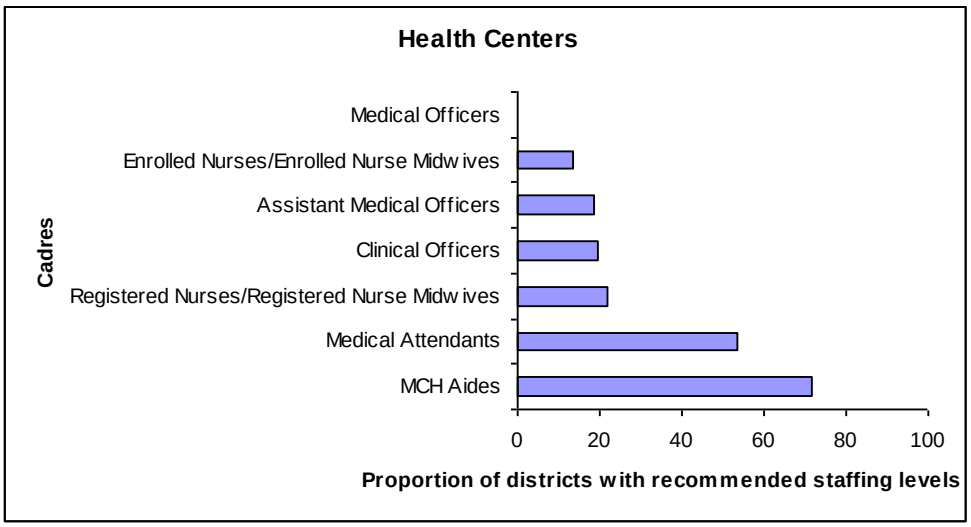
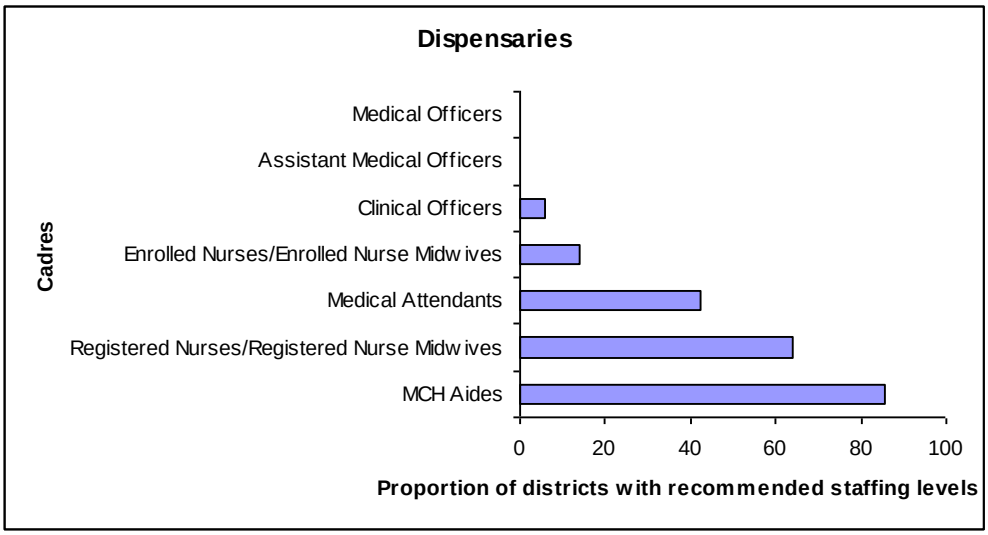
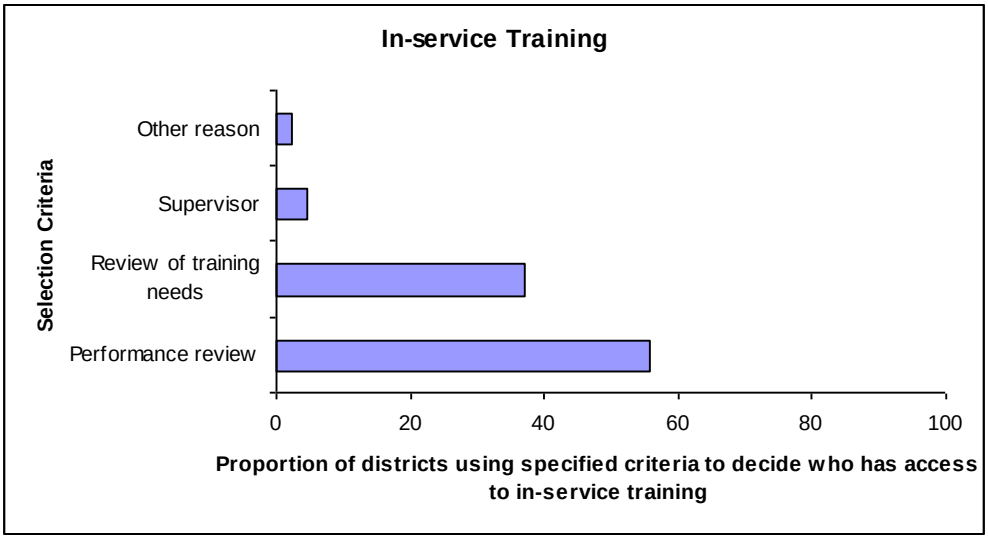


Figure 13 Proportion of districts with dispensaries staffed at the recommended levels



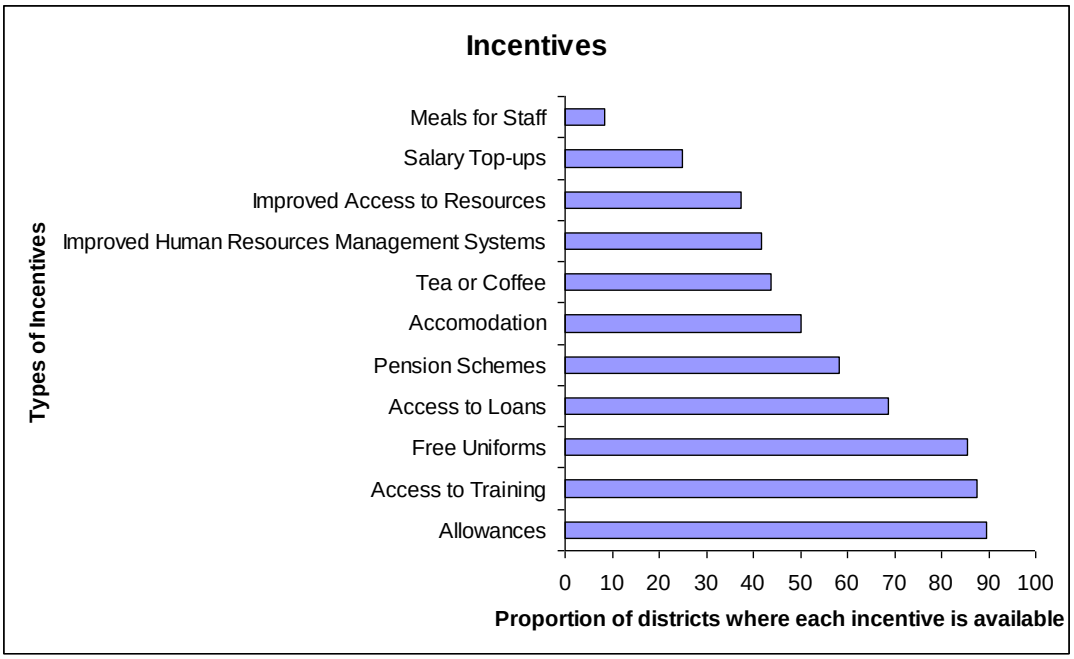
Training. Most (95.8%) of 43 districts reported having formal plans for providing in-service training to staff. Fifty six per cent of respondents reported that access to in-service training in their districts is granted to staff based on individual performance evaluations, 37% on review of training needs and 4.7% upon the offer of a supervisor or manager.

Figure 14 Proportion of districts using specified criteria to decide who has access to in-service training (n=43 districts)



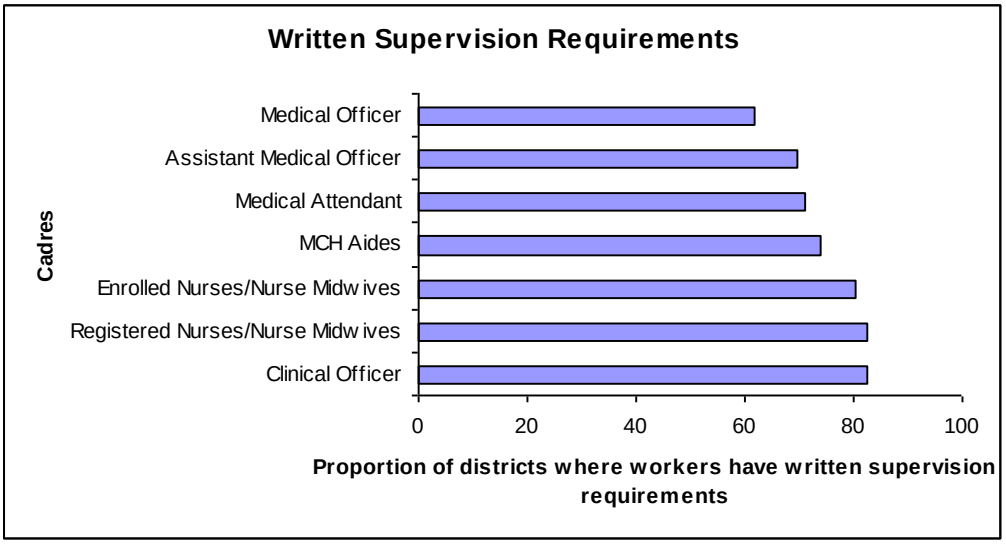
Rewards and recognition. Majority (95.8%) of the 48 districts reported using mechanisms to reward or sanction for staff performance. Examples of rewards included cash rewards, certificates of recognition, promotions and bicycles. Examples of sanctions utilized to address poor performance included warning letters, demotion and dismissal. In addition, different types of incentives to motivate health workers and enhance performance were available in varying degrees across districts.

Figure 15 Proportion of districts where each type of incentive is available (n=48 districts)



Appraisal. More than 60% of districts reported having written supervision requirements for each cadre. Health facilities in almost all of the 48 districts were supervised by external government staff (93.8%) and by facility staff (87%). In 44 districts, majority (93.2%) of the supervisory activities conducted by external staff were comprehensive assessments while 6.8% of visits focused solely on maternal child health.

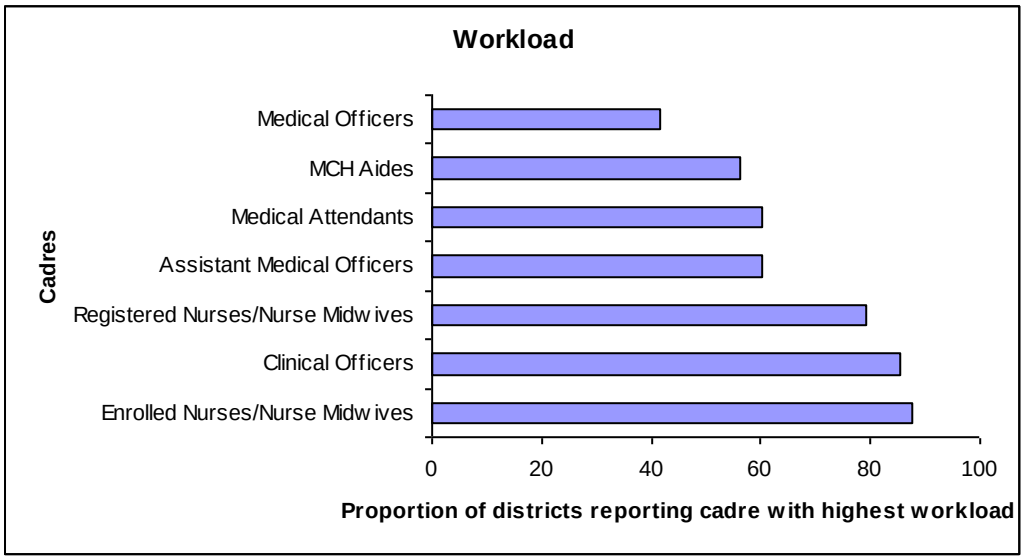
Figure 16 Proportion of districts where workers have written supervision requirements[a]



[a] Number of districts reporting workers have written supervision requirements per cadre: medical officer (n=42), assistant medical officer (n=46), medical attendant (n=45), MCH aides (n=42), enrolled nurses/nurse midwives (n=46), registered nurses/nurse midwives (n=46) and clinical officers (n=46).

Work design. Sixty eight percent of the 48 districts endorsed having a mechanism to match staffing numbers to workload.

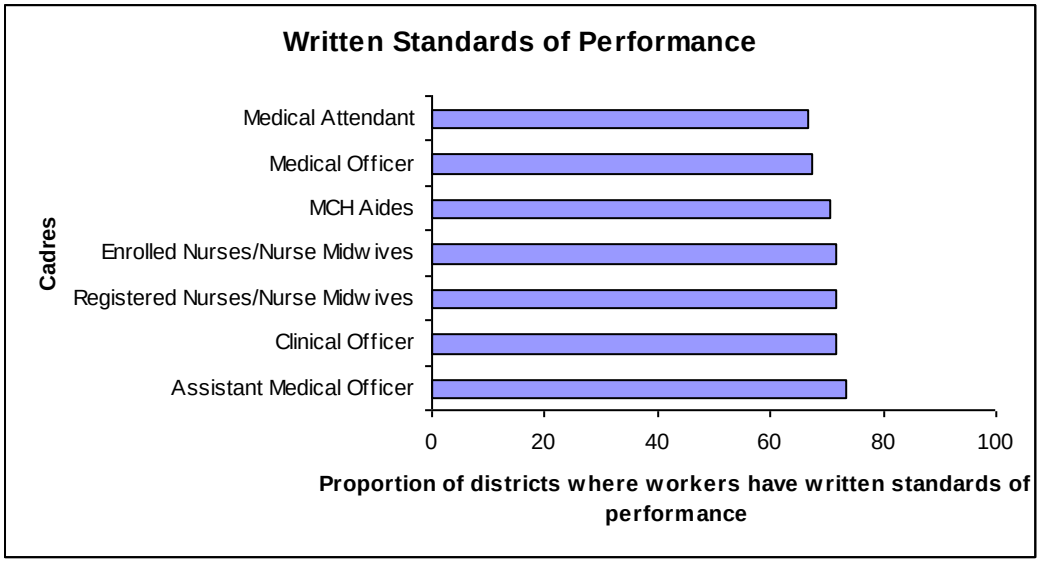
Figure 17 Proportion of districts reporting cadre with the highest workload (n=48 districts)



Participation. CHMTs in 48 districts reported moderate to high levels of autonomy in the following HR management functions: staffing levels (77.1%), recruitment (81.3%), determining access to in-services (81.4%), supervision and performance management systems (89.6%), staff discipline (85.5%) and dismissal (56.2%). Districts reported moderate to low levels of autonomy in the following HR management functions: setting salaries (64.6%) and allowances (60%).

Communication. The proportion of districts where workers have written standards of performance for each cadre was between 67% (medical attendants) and 73% (assistant medical officers).

Figure 18 Proportion of districts where workers have written standards of performance[a]



[a] Number of districts reporting workers have written standards of performance per cadre: medical officer (n=43), assistant medical officer (n=45), medical attendant (n=45), MCH aides (n=44), enrolled nurses/nurse midwives (n=46), registered nurses/nurse midwives (n=46) and clinical officers (n=46).

Summary

The people management practices enumerated in Wright et al's (2001; 2007) model of basic SHRM components were in use in all 48 districts, but to varying degrees. Severe personnel shortages were apparent for cadres with higher levels of training (ACs, nurses and midwives) compared to cadres with lower levels of training (MCH aides and medical attendants). Overall, hospitals were better staffed than health centers and dispensaries. Barriers to successful recruitment and retention of health workers in under-resourced rural milieu were directly linked to the inability to compete for personnel against better resourced urban areas especially when supplies of personnel are extremely

low. These factors are beyond the control of CHMTs and a source of frustration for them. Additionally, limited decision making authority on central HRM functions, for example budgets and financing, meant that little action could be taken by CHMTs to ease the salary bottlenecks which impact health worker performance negatively.

CHAPTER VI

DISCUSSION

Overall, there was agreement between providers and CHMTs about the pervasive personnel shortages and the detrimental effect of understaffing on quality of health services, workload, patient satisfaction and staff satisfaction. In addition, there was agreement between providers and CHMTs that low, late and partial payments of salaries were a major source of loss of motivation, which formed a barrier to effective recruitment and retention of personnel. Health workers described making frequent fruitless and costly excursions to the district headquarters to seek assistance with HR related problems that were met with constant postponements. CHMTs came across as well-informed about these HR shortcomings in their specific districts but were not explicit about applying innovative interventions to relieve underlying HR issues on behalf of personnel. The perception that CHMTs were complacent in processing personnel issues coupled with their displays of visible symbols of wealth, indicating that the managers were "doing well," cultivated a sense of mistrust towards CHMTs.

When CHMTs were able to exercise their decision making authority, their judgment was sometimes perceived as unfair by the health workers. For example, ongoing large scale initiatives to improve maternal health, a priority area in Tanzania, mean increased opportunities for in-service training aimed at strengthening the capacity of personnel. These in-service workshops were identified as a highly desirable incentive for health workers because they are associated with travel outside of one's locale, meeting with other maternal health providers, acquiring new knowledge and skills, as well as earning a stipend. Repeatedly, ACs, nurses and midwives reported that selection

to participate in these workshops was not transparent. On the contrary, CHMTs indicated that selection of personnel to attend in-service training was based on performance reviews and assessed training needs. The health workers interviewed stated that the same personnel were selected to attend in-service training over and over again, much to their dismay. Sometimes the work assignment of those chosen to participate was not related to the content of course. Therefore, those workers received fringe benefits associated with attending the workshops but could not bring new knowledge back to personnel who did not participate.

Almost all districts were reported by CHMTs to offer allowances (89.6%) and free uniforms (85.4%) as performance boosting incentives (see Figure 15). Meanwhile, the health workers interviewed cited that absence of allowances and lack of adequate uniforms caused loss of motivation. Multiple health workers described incidences when they worked more hours than they were scheduled for reasons such as an overwhelming patient census, high patient acuity or to alleviate personnel shortages, without remuneration. Others spoke of having to tap into their own limited personal resources to hire vehicles so as to transfer patients to higher levels of care when an ambulance was not available. When these employees followed procedure by filing for reimbursement of these costs, frequently the paperwork was lost in the bureaucratic shuffle. Similarly, the health care providers in our sample expressed lack of sufficient uniforms. Some spoke of working long hours and then going home to wash their only uniform in preparation for the next shift. Others pointed to the inadequacy of protective clothing; they mentioned wearing open-toe sandals when their work in delivery rooms was associated with exposure to an abundance of potentially infectious body fluids.

The provider and manager perspectives emerging from this study highlighted key gaps in the people management practices employed by CHMTs when viewed through the lens of Wright et al's (2001, 2007) basic SHRM components model. The underlying premise of the basic SHRM components models is that only partially exploiting the health workforce, a central organizational resource, limits the capacity of health workers to deliver EmOC. By revealing the gaps in people management practices evident in this study, the model provided a useful framework for integrating organizational resources and strategy.

Policy Implications

Establishing positive practice environments for ACs, nurses and midwives who deliver EmOC in Tanzania as a means of enhancing their performance should start with creating supportive management. Members of CHMTs acknowledged the importance of being receptive listeners and responsive to the needs of health workers as critical factors necessary for enhancing personnel motivation. Indeed, these social exchanges whereby leaders convey expectations about desired employee behavior and then reward that behavior when the preset conditions are met amount to transactional leadership, a known precursor to improving employee performance (Bass & Riggio, 2006). As Tanzania strives to address the goals set out in its HRH strategic plan, intervening to enhance the quality of the interactions between CHMTs and health workers can serve to create a positive practice environment in which employee performance is enhanced (MoHSW, 2008).

Secondly, HRH managers aspiring to mobilize health workers who work in dynamic acute obstetric settings to achieve high levels of performance and deliver

reliable, safe care must assume a culture that prioritizes quality (Knox et al, 2009; Meyer et al, 2004; Silow-Carroll, Alteras & Meyer, 2007). In order to achieve a high reliability of care delivered by a cohesive team of multidisciplinary providers, transactional leadership is not enough. Bass and Riggio (2006) propose transformational leadership as means of "inspiring followers to commit to a shared vision and goals for an organization or unit, challenging them to be innovative problem solvers and developing followers' leadership capacity via coaching, mentoring and provision of challenge or support." Interventions to nurture transformational leaders who motivate health workers to commit to delivering safe and reliable obstetric care are essential.

Finally, barriers to effective administrative functioning of HRH managers within the context of a decentralized health systems must be eliminated. Effort should be made to recruit and retain appropriately trained managers who are well versed in public health and administration. Those who are already in service should receive regular, updated in-services to enhance their management expertise. Systems bottlenecks, such as payroll delays and supply chain interruptions, should be streamlined and bureaucratic red tape removed to facilitate smooth two-way communication between providers and the local health authorities and between local health authorities and central government. Most importantly, restoration of trust between providers and members of CHMTs is vital for the shared vision to provide quality maternal health care to be realized.

Future research

At the time data was collected for the parent HSSE study, the MoHSW in Tanzania launched its 2008-2013 HRH Strategic Plan which prioritized the crucial need to strengthen the capacity of HRM and address health systems bottlenecks that affect

HRH performance. Using knowledge gained in this study as a comparative baseline, future studies can determine the effects of HRM interventions put into practice as part of the HRH Strategic Plan. In addition, more robust examinations of elements of leadership amongst members of CHMTs should be incorporated into future studies. Bass and Riggio (2006) recommend using validated surveys such as the Multifactor Leadership Questionnaire or Transformational Leadership Questionnaire.

Study Strengths

The mixed-methods methodology applied to analyze qualitative and quantitative data in this study served well to elucidate a comprehensive view of the people management practices from both the provider and management perspectives. Findings from the core qualitative and supplemental quantitative components obtained from both providers and members of CHMTs were used to verify and augment understanding of the HRM milieu as it is experienced by the respondents. Secondly, both researchers analyzing the qualitative data achieved immersion by reading and re-reading the interview transcripts over the course of 8 months. We engaged in frequent deliberations to clarify and confirm our understanding of the experiences as they were expressed by respondents. The ability of the bilingual researcher to understand the transcripts in both Swahili and English validated that the essential meaning expressed by participants was not lost in translation. Collectively and individually, members of the research team possess extensive knowledge of the health services context in Tanzania and experience in maternal health care as it is delivered in under-resourced regions of sub-Saharan Africa. This knowledge formed a vital contribution to the understanding of context being described by both providers and members of CHMTs.

Study Limitations

This study relied on the self-report of members of CHMTs who may have overstated actual HRM practices in order to maintain a semblance of social desirability. This limitation was counteracted by the fact that perceptions of health workers on HRM practices were available, which allowed for consideration of "both sides of the same coin."

The use of purposeful sampling, a non-random method, restricts the generalizations that can be made from the quantitative component of this study (Shadish, Cook & Campbell, 2002). However, it should be emphasized that findings from the quantitative strand of this study can only be considered within the context of the primary qualitative strand, as is required in mixed method design (Creswell & Plano Clark, 2011). As Morse (2010) asserts, the supplementary quantitative component of this mixed method study was used to strengthen findings in the main component by expanding, corroborating and embellishing results obtained in the qualitative component.

Complete data was not available for all of the quantitative data. This is a limitation of secondary analyses where the researcher does not have the option to return to respondents in order to seek missing data or clarify responses. Nevertheless, less than 10% of data representing each variable of interest was missing, with missing responses scattered randomly across participants. Missing data was not considered a criterion for excluding cases in the analyses (Langkamp, Lehman & Lemeshow, 2010). However, regular peer debriefing with members of the research team who possess in-depth knowledge of the Tanzania health services delivery context was useful to discuss inferences. Additionally, findings were confirmed when the qualitative and quantitative

data from members of the CHMTs and the ACs, nurses and midwives were considered together.

Conclusion

This study provided a unique perspective of the people management practices utilized by CHMTs to plan for and deploy ACs, nurses and midwives who deliver EmOC in Tanzania. Suboptimal practices put into place by HRH managers undermine the quality of the work environment in which maternal health care is delivered. Given the importance of halting preventable maternal deaths in low-resource settings, attention must be paid to developing the ability of HRH managers to create positive practice environments.

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APPENDIX A

Signal functions used to identify basic and comprehensive EmOC

Basic services	Comprehensive services
(1) Administer parenteral[1] antibiotics	Perform signal functions 1–7, plus:
(2) Administer uterotonic drugs[2] (i.e. parenteral oxytocin)	(8) Perform surgery (e.g. caesarean section)
(3) Administer parenteral anticonvulsants for pre-eclampsia and eclampsia (i.e. magnesium sulfate).	(9) Perform blood transfusion
(4) Manually remove the placenta	
(5) Remove retained products (e.g. manual vacuum extraction, dilation and curettage)	
6) Perform assisted vaginal delivery (e.g. vacuum extraction, forceps delivery)	
(7) Perform basic neonatal resuscitation (e.g. with bag and mask)	
A basic emergency obstetric care facility is one in which all functions 1–7 are performed. A comprehensive emergency obstetric care facility is one in which all functions 1–9 are performed.	

APPENDIX B

Integrative review: summary of results

Author (year)	Setting	Study Sample	Study Aim	Study Methodology	Intervention	Outcome
Barker (1995)	Low-income countries	N/A	Describe obstacles to conducting research and use of evidence in decision making by health managers in low-income countries.	Literature review.	None.	Little or no academic preparation to perform research or apply findings, resistance to change and multiple competing agendas were listed as barriers.
Bärnighausen et al (2009)	N/A	None.	Discuss management functions necessary for sustainable financial incentive programs.	Literature review.	None	Seven management functions: financing, public awareness campaigns, selecting participants, deploying health workers to underserved areas, mentoring and support, implementing program strategy to prevent defaulting on program obligations and evaluation.

Bradley et al (2008)	Ethiopia	14 government hospitals.	Evaluate the impact of a mentoring program for hospital managers.	Descriptive (pretest-posttest).	Ethiopia Hospital Management Initiative (a partnership-mentoring model between medical director, hospital managers and fellows from the Yale School of Public Health and Clinton Global Health Initiative).	Improvement noted in 45 of 75 areas concerned with human resources management and other facility management functions.
Conn et al (1995)	Gambia	2 health regions (districts)	Describe the implementation of a management strengthening project.	Case study.	Management Strengthening Project stressing local problem-solving and little reliance on external resources.	Success of the project and barriers to project implementation were discussed.

Curry et al (2012)	Ethiopia, Ghana, Liberia and Rwanda	17 regional and nation leaders playing key roles	Describe the experience of those in leadership within the health sector of select African countries.	Qualitative.	None.	Five themes: "having an aspirational, value-based vision for improving the health of the country," "being self aware and having the ability to identify and use complementary skills in others," "tending to relationships," "use of data in decision making" and "commitment to learning."

Dieleman et al (2009)	Low- and middle-income countries	48 articles.	Synthesize literature evaluating HR management interventions.	Literature review.	None.	In-service training is associated with improved knowledge, skills and attitude, but the effects are temporary. Supervision is enhanced by mutual respect. Financial incentives can enhance performance. Decentralization can impact HRM activities negatively and should be accompanied with interventions for HR managers. Quality improvement interventions lead to improved HRM activities. Comprehensive interventions are associated with significant improvements in performance.

Dorros (2006)	Tanzania, Gambia, Mexico, El Salvador and Colombia	Health managers.	Description of methods used to build a sustainable management capacity within a context of rapid scale-up of health services at the district and facility levels.	Case study.	18 months of intermittent management courses and practicums.	Gambia: more cohesive District Health Management Teams and performance of management functions; Mexico, El Salvador & Colombia: increased knowledge, demonstration of newly acquired skills and workshops were replicated; Tanzania: cohesive District Health Management Teams, improved health outcomes and quality of care, better communication with frontline workers and infrastructure improvements.

Fritzen (2007)	Low-income countries.	N/A	Enumerate insights on strategic HRH management in low-income countries.	Literature review.	N/A	Components of health workforce inequities, workforce performance and contextual health systems factors are discussed.
Garcia-Prado & Chawla (2006)	Costa Rica	Aggregate health personnel	Assess the impact of 1994 reforms to the health sector on absenteeism.	Observational.	Decentralization (transfer of responsibility for primary care transferred to Social Security Institute [CCSS]). Formation of 800 Basic Health Teams. Reimbursement linked to specified health outcomes.	Cumulative sick days increased after health sector reforms.

Hartwig et al (2008)	Ethiopia	14 government hospitals.	Description of a mentoring program for hospital managers.	Case study.	Ethiopia Hospital Management Initiative (a partnership-mentoring model between medical director, hospital managers and fellows from the Yale School of Public Health and Clinton Global Health Initiative).	Six priority areas of need identified (HRM, operations management, financial management, nursing practice, infection control and information system). Overall good or excellent level of trust between mentors and mentees at 6th week assessment. 24 formal hospital management improvement plans prepared using tools taught by the mentors.
Loevinsohn et al (1995)	Phillipines	112 health stations and health centers in 10 provinces.	Evaluate the effect of an Integrated Supervisory Checklist.	RCT	Integrated Supervisory Checklist.	Performance on selected indicators improved with number of supervisory visits in the experimental facilities.

McEwan et al (2001)	Nicaragua	137 health professionals.	Describe a program to train public health managers.	Case study.	2 training workshops on team building, total quality management and behavioral styles with return demonstration of competencies.	Trainees developed and implemented management projects to improve quality of health services. A train-the-trainer component has ensured sustainability of the program.

Omar et al (2009)	Iran	23 health officials.	Evaluate a training program aimed at increasing the capacity of health managers.	Mixed methods: Quantitative (survey) and Qualitative (key informant interviews)	1) Short courses in health system decentralization, clinical governance and health planning, management and policy at University of Leeds, UK. 2) Short courses in policy context for health sector reform, planning and organization of health sector reform, resources management for health sector reform and training of trainers at National Public Health Management Center, Iran.	Knowledge gained is mostly used for group work, presentations, action plans, priority setting and health systems research. Knowledge gained least used for monitoring and evaluation, leadership role, developing training programs for health workers and training health workers.

Perry (2008)	Mozambique	25 provincial and district health managers from 11 health units in 6 districts of Nampula Province.	Describe the implementation of a management strengthening program.	Case study.	Four workshops on the following subjects: Leadership concepts, Leadership & Management framework, leadership strategies, organizational change, communication, negotiation, teamwork, motivation and action planning.	Successful team building in health units with observed improvements in process measures of quality of health services delivered.
Rowe et al (2010)	Liberia	93 health managers employed by the government and international NGOs.	Evaluate the impact of a capacity building initiative for health managers.	Quantitative (Cross-sectional survey).	Health Systems Management course and fieldwork.	The course was well received. Participant satisfaction did not differ significantly when the course was taught by Yale University faculty compared to Liberian faculty.

Tavrow et al (2002)	Zimbabwe	16 supervisors visited 4 government and 3 mission hospitals, 3 rural district health centers, 4 municipality clinics and 2 mobile clinics.	Develop and test an instrument to measure quality of supervisor-provider interactions.	Tool development	None.	An 11 item checklist rating supervision behaviors on a scale of 1-10. Median score 47 (range 16-45).